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Early Western Travels
1748-1846

Volume XVI

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vol. 16

Early Western Travels

1748-1846

A Series of Annotated Reprints of some of the best
and rarest contemporary volumes of travel, de-
scriptive of the Aborigines and Social and
Economic Conditions in the Middle
and Far West, during the Period
of Early American Settlement

Edited with Notes, Introductions, Index, etc., by

Reuben Gold Thwaites, LL.D.

Editor of "The Jesuit Relations and Allied Documents," "Original
Journals of the Lewis and Clark Expedition," "Hennepin's
New Discovery," etc.

Volume XVI

Part III of James's Account of S. H. Long's Expedition,
1819-1820



Cleveland, Ohio
The Arthur H. Clark Company
1905

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PART III OF JAMES'S ACCOUNT OF S. H. LONG'S
EXPEDITION, 1819 - 1820

Reprinted from Volumes II and III of London edition, 1823

EXPEDITION FROM PITTSBURGH TO THE ROCKY MOUNTAINS

[PART III]

[212] CHAPTER I [VIII]¹

Excursion to the Summit of the Peak — Mineral Springs —
Coquimbo Owl — Encampment on the Arkansa.

At an early hour on the morning of the 13th, Lieutenant Swift, accompanied by the guide, was despatched from camp, to measure a base near the peak, and to make there a part of the observations requisite for calculating its elevation. Dr. James, being furnished with four men, two to be left at the foot of the mountain to take care of the horses, and two to accompany him in the proposed ascent to the summit of the peak, set off at the same time.

This detachment left the camp before sunrise, and taking the most direct route across the plains, arrived at eleven o'clock at the base of the mountain. Here Lieutenant Swift found a place suited to his purpose; where, also, was a convenient spot for those who were to ascend the mountain to leave their horses. At this place was a narrow, woodless valley, dividing transversely several sandstone ridges, and extending westward to the base of the peak.

After establishing their horse-camp, the detachment moved up the valley on foot, arriving about noon at the boiling spring, where they dined on a saddle of venison,

¹ Chapter viii of volume ii of the original London edition.— ED.

and some bison ribs they had brought ready cooked from camp.

The *boiling spring* is a large and beautiful fountain of water, cool and transparent, and aërated with carbonic acid. It rises on the brink of a small stream, which here descends from the mountain, at the point where the bed of this stream divides the ridge of sandstone which rests against the base of the first [213] granitic range. The water of the spring deposits a copious concretion of carbonate of lime,² which has accumulated on every side, until it has formed a large basin overhanging the stream; above which it is raised several feet. This basin is of a snowy whiteness, and large enough to contain three or four hundred gallons, and is constantly overflowing.

The spring rises from the bottom of the basin, with a rumbling noise, discharging about equal volumes of air and of water, probably about fifty gallons per minute; the whole kept in constant agitation. The water is beautifully transparent; and has the sparkling appearance, the grateful taste, and the exhilarating effect, of the most highly aërated artificial mineral waters.

Distant a few rods from this is another spring of the same kind, which discharges no water, its basin remaining constantly full, and air only escaping from it. We collected some of the air from both these springs in a box we had carried for the reception of plants; but could not

² It is well known that water, in which carbonic acid is dissolved, has the power of holding in solution a portion of lime, somewhat proportioned in quantity to the acid. In this instance, the water no sooner comes in contact with the atmosphere than it parts with a portion of its fixed air, consequently loses the power of holding in solution the lime which is immediately deposited. The lime may perhaps, in this instance, be derived from the cement of the sand-rock.

— JAMES.

perceive it to have the least smell, or the power of extinguishing flame, which was tested, by plunging into it lighted splinters of dry cedar.

The temperature of the water of the larger spring at noon was 63°, the thermometer at the same time, in the shade, stood at 68°; immersed in the small spring, at 67°. This difference in temperature is owing to the difference of situation, the higher temperature of the small spring depending entirely on its constant exposure to the rays of the sun, and to its retaining the same portion of water; while that in the large spring is constantly replaced by a new supply.³

After we had dined, and hung up some provisions in a large red cedar-tree near the spring, intending it for a supply on our return, we took leave of Lieutenant Swift, and began to ascend the mountain. We carried with us each a small blanket, ten [214] or twelve pounds of bison meat, three gills of parched corn meal, and a small kettle.

The sandstone extends westward from the springs, about three hundred yards, rising rapidly upon the base of the mountain; it is of a deep red colour, for the most part compact and fine, but sometimes embracing angular fragments of petrosilex and other siliceous stones, with a few organic impressions. The granite which succeeds to this is coarse, and of a deep red colour; some loose fragments of gneiss were seen lying about the surface, but none in place. The granite at the base of the mountain contains a large proportion of felspar, of the rose-coloured variety, in imperfect cubic crystals. The mass appears to be rapidly disintegrating, under the operation of frost and other causes,

³ The "boiling spring" is the site of Manitou Springs, now a famous watering place, from which millions of bottles of the water are annually shipped. Carbonate of lime composes nine-tenths of the mineral matter in solution. From this point the cogwheel railroad ascends Pike's Peak.—ED.

crumbling into small masses of half an ounce weight, or less.

The ascending party found the surface in many places covered with such quantities of this loose and crumbled granite, rolling from under their feet, as rendered the ascent extremely difficult. We now began to credit the assertions of the guide, who had conducted us to the foot of the peak, and there left us, with the assurance that the whole of the mountain to its summit was covered with loose sand and gravel; so that, though many attempts had been made by the Indians and by hunters to ascend it, none had ever proved successful. We passed several of these tracts, not without some apprehension for our lives; as there was danger, when the foothold was once lost, of sliding down, and being thrown over precipices. After labouring with extreme fatigue over about two miles, in which several of these dangerous places occurred, we halted at sunset in a small cluster of fir trees. We could not, however, find a piece of even ground large enough to lie down upon, and were under the necessity of securing ourselves from rolling into the brook near which we encamped by means of a pole placed against two trees. In this situation, we [215] passed an uneasy night; and though the mercury fell only to 54° , felt some inconvenience from cold.

On the morning of the 14th, as soon as daylight appeared, having suspended in a tree our blankets, all our provisions, except about three pounds of bison's flesh, and whatever articles of clothing could be dispensed with, we continued the ascent, hoping to be able to reach the summit of the peak, and return to the same camp in the evening. After passing about half a mile of rugged and difficult travelling, like that of the preceding day, we crossed a deep chasm, opening towards the bed of the small stream

we had hitherto ascended; and following the summit of the ridge between these, found the way less difficult and dangerous.

Having passed a level tract of several acres covered with the aspen, poplar, a few birches, and pines, we arrived at a small stream running towards the south, nearly parallel to the base of the conic part of the mountain which forms the summit of the peak. From this spot we could distinctly see almost the whole of the peak: its lower half thinly clad with pines, junipers, and other evergreen trees; the upper, a naked conic pile of yellowish rocks, surmounted here and there with broad patches of snow. But the summit appeared so distant, and the ascent so steep, that we began to despair of accomplishing the ascent and returning on the same day.

About the small stream before mentioned, we saw an undescribed white-flowered species of caltha, some pediculariæ, the shrubby cinque-foil (*potentilla fruticosa*, Ph.) and many alpine plants. At this point a change is observed in the character of the rock, all that which constitutes the peak beyond containing no mica. It is a compact, fine-grained aggregate of quartz, felspar, and hornblende; the latter in small proportion, and sometimes wholly wanting.

The day was bright, and the air nearly calm. As we ascended rapidly, we could perceive a manifest [216] change of temperature; and before we reached the outskirts of the timber, a little wind was felt from the north-east. On this part of the mountain is frequently seen the yellow-flowered stone-crop (*sedum stenopetalum*, Ph.), almost the only herbaceous plant which occurs in the most closely wooded parts of the mountain. We found the trees of a smaller size, and more scattered in proportion to the

elevation at which they grew; and arrived at about twelve o'clock at the limit above which none are found. This is a defined line, encircling the peak in a part which, when seen from the plain, appeared near the summit; but when we arrived at it, a greater part of the whole elevation of the mountain seemed still before us. Above the timber the ascent is steeper, but less difficult than below; the surface being so highly inclined, that the large masses, when loosened, roll down, meeting no obstruction until they arrive at the commencement of the timber. The red cedar, and the flexile pine,⁴ are the trees which appear at the greatest elevation. These are small, having thick and extremely rigid trunks; and near the commencement of the naked part of the mountain, they have neither limbs nor bark on that side which is exposed to the descending masses of rocks. It may appear a contradiction to assert, that trees have grown in a situation so exposed as to be unable [to] produce or retain bark or limbs on one side; yet of the fact that they are now standing and living in such a situation there can be no doubt. It is, perhaps, probable the timber may formerly have extended to a greater elevation on the sides of this peak than at present, so that those trees which are now on the outskirts of the forest were formerly protected by their more exposed neighbours.

A few trees were seen above the commencement of snow; but these are very small, and entirely procumbent, being sheltered in the crevices and fissures of the rock. There are also the roots of trees to be seen at [217] some distance above the part where any are now standing.

A little above the point where the timber disappears entirely, commences a region of astonishing beauty, and of great interest on account of its productions. The

⁴ *Pinus flexilis*. N. S.—JAMES.

intervals of soil are sometimes extensive, and covered with a carpet of low but brilliantly-flowering alpine plants. Most of these have either matted procumbent stems, or such as, including the flower, rarely rise more than an inch in height. In many of them the flower is the most conspicuous and the largest part of the plant, and in all the colouring is astonishingly brilliant.

A deep blue is the prevailing colour among these flowers; and the pentstemon erianthera, the mountain columbine (*aquilegia cœrulea*), and other plants common to less elevated districts, were much more intensely coloured than in ordinary situations. It cannot be doubted, that the peculiar brilliancy of colouring observed in alpine plants, inhabiting near the utmost limits of phænogamous vegetation, depends principally upon the intensity of the light transmitted from the bright and unobscured atmosphere of those regions, and increased by reflection from the immense impending masses of snow. May the deep cerulean tint of the sky have an influence in producing the corresponding colour so prevalent in the flowers of these alpine plants? At about two o'clock we found ourselves so much exhausted as to render a halt necessary. Mr. Wilson, who had accompanied us as a volunteer, had been left behind some time since, and could not now be seen in any direction. As we felt some anxiety on his account, we halted, and endeavoured to apprise him of our situation; but repeated calls, and the discharging of the rifleman's piece, produced no answer. We therefore determined to wait some time to rest, and to eat the provision we had brought, hoping, in the meantime, he would overtake us.

[218] We halted at a place about a mile above the edge of the timber. The stream by which we were sitting we could perceive to fall immediately from a large body of

snow, which filled a deep ravine on the south-eastern side of the peak. Below us, on the right, were two or three extensive patches of snow; and ice could be seen everywhere in the crevices of the rocks.

Here, as we were sitting at our dinner, we observed several small animals, nearly of the size of the common gray squirrel; but shorter, and more clumsily built. They were of a dark gray colour, inclining to brown, with a short thick head, and erect rounded ears. In habits and appearance, they resemble the prairie dog, and are believed to be a species of the same genus. The mouth of their burrow is usually placed under the projection of a rock; and near these the party afterwards saw several of the little animals watching their approach, and uttering all the time a shrill note, somewhat like that of the ground squirrel. Several attempts were made to procure a specimen of this animal, but always without success, as we had no guns but such as carried a heavy ball.

After sitting about half an hour, we found ourselves somewhat refreshed, but much benumbed with cold. We now found it would be impossible to reach the summit of the mountain, and return to our camp of the preceding night, during that part of the day which remained; but as we could not persuade ourselves to turn back, after having so nearly accomplished the ascent, we resolved to take our chance of spending the night on whatever part of the mountain it might overtake us. Wilson had not yet been seen; but as no time could be lost, we resolved to go as soon as possible to the top of the peak, and look for him on our return. We met, as we proceeded, such numbers of unknown and interesting plants, as to occasion much delay in collecting; [219] and were under the mortifying necessity of passing by numbers we saw in situations difficult of access.

As we approached the summit, these became less frequent, and at length ceased entirely. Few cryptogamous plants are seen about any part of the mountain; and neither these nor any others occur frequently on the top of the peak. There is an area of ten or fifteen acres forming the summit, which is nearly level; and on this part scarce a lichen was to be seen. It is covered to a great depth with large splintery fragments of a rock entirely similar to that found at the base of the peak, except perhaps a little more compact in its structure. By removing a few of these fragments, they were found to rest upon a bed of ice, which is of great thickness, and may, perhaps, be as permanent as the rocks with which it occurs.

It was about 4 o'clock P. M. when the party arrived on the summit. In our way we had attempted to cross a large field of snow, which occupied a deep ravine, extending down about half a mile from the top, on the south-eastern side of the peak. This was, however, found impassable, being covered with a thin ice, not sufficiently strong to bear the weight of a man. We had not been long on the summit when we were rejoined by the man who had separated from us, near the outskirts of the timber. He had turned aside and lain down to rest, and afterwards pursued his journey by a different route.

From the summit of the peak, the view towards the north-west and south-west is diversified with innumerable mountains, all white with snow; and on some of the more distant it appears to extend down to their bases. Immediately under our feet, on the west, lay the narrow valley of the Arkansa, which we could trace running towards the north-west, probably more than sixty miles.

On the north side of the peak was an immense [220] mass of snow and ice. The ravine in which it lay termin-

ated in a woodless and apparently fertile valley, lying west of the first great ridge, and extending far towards the north. This valley must undoubtedly contain a considerable branch of the Platte. In a part of it, distant probably thirty miles, the smoke of a large fire was distinctly seen, supposed to indicate the encampment of a party of Indians.⁵

To the east lay the great plain, rising as it receded, until in the distant horizon it appeared to mingle with the sky. A little want of transparency in the atmosphere, added to the great elevation from which we saw the plain, prevented our distinguishing the small inequalities of the surface. The Arkansa, with several of its tributaries, and some of the branches of the Platte, could be distinctly traced as on a map, by the line of timber along their courses.

On the south the mountain is continued, having another summit, (supposed to be that ascended by Captain Pike,) at the distance of eight or ten miles. This, however, falls much below the high peak in point of elevation, being wooded quite to its top. Between the two lies a small lake, apparently a mile long, and half a mile wide, discharging eastward into the Boiling-spring creek. A few miles farther towards the south, the range containing these two peaks terminates abruptly.⁶

⁵ It is related in Du Pratz's History of Louisiana, p. 71., that in the year 1724, a large tribe of Indians, called Padoucas, resided in several villages on the heads of the Konzas river; that they removed thence to the sources of the Platte: here they are said still to exist. See Brackenridge's Views, p. 147. Lewis and Clarke's Map, &c. But these accounts need confirmation.—JAMES.

Comment by Ed. See volume xiv, note 179.

⁶ There is some uncertainty as to the peak which Pike ascended. Dr. Elliott Coues thinks he reached high ground between Mount Rosa and Cheyenne Mountain, approaching from the south. See *Pike's Expeditions*, pp. 454, 455, notes 46, 47. These peaks are eight or ten miles southeast of Pike's.—ED.

The weather was calm and clear while the detachment remained on the peak; but we were surprised to observe the air in every direction filled with such clouds of grasshoppers, as partially to obscure the day. They had been seen in vast numbers about [221] all the higher parts of the mountain, and many had fallen upon the snow and perished. It is, perhaps, difficult to assign the cause which induces these insects to ascend to those highly elevated regions of the atmosphere. Possibly they may have undertaken migrations to some remote district; but there appears not the least uniformity in the direction of their movements.⁷ They extended upwards from the summit of the mountain to the utmost limit of vision; and as the sun shone brightly, they could be seen by the glittering of their wings, at a very considerable distance.

About all the woodless parts of the mountain, and particularly on the summit, numerous tracks were seen, resembling those of the common deer, but most probably have been those of the animal called the big horn. The skulls and horns of these animals we had repeatedly seen near the licks and saline springs at the foot of the mountain, but they are known to resort principally about the most elevated and inaccessible places.

The party remained on the summit only about half an hour; in this time the mercury fell to 42°, the thermometer hanging against the side of a rock, which in all the early part of the day had been exposed to the direct rays of the sun. At the encampment of the main body in the plains,

⁷ Notes referring particularly to this grasshopper, and to many other insects, and many other animals, collected on the Platte and about the mountains, were subsequently lost in the robbery committed by three of the soldiers, who deserted from the party in the country of the Osages. It is on this account that the name of the insect alluded to cannot be given, as it is now impossible to identify the specimen. — JAMES.

a corresponding thermometer stood in the middle of the day at 96° , and did not fall below 80° until a late hour in the evening.

Great uniformity was observed in the character of the rock about all the upper part of the mountain. [222] It is a compact, indestructible aggregate of quartz and felspar, with a little hornblende, in very small particles. Its fracture is fine, granular, or even; and the rock exhibits a tendency to divide when broken into long, somewhat splintery fragments. It is of a yellowish brown colour, which does not perceptibly change by long exposure to the air. It is undoubtedly owing to the close texture and the impenetrable firmness of this rock that so few lichens are found upon it. For the same reason it is little subject to disintegration by the action of frost. It is not improbable that the splintery fragments, which occur in such quantities on all the higher parts of the peak, may owe their present form to the agency of lightning. No other cause seems adequate to the production of so great an effect.

Near the summit some large detached crystals of felspar, of a pea-green colour, were collected; also large fragments of transparent, white and smoky quartz, and an aggregate of opaque white quartz, with crystals of hornblende.

At about five in the afternoon the party began to descend, and a little before sunset arrived at the commencement of the timber; but before we reached the small stream at the bottom of the first descent, we perceived we had missed our way. It was now become so dark as to render an attempt to proceed extremely hazardous; and as the only alternative, we kindled a fire, and laid ourselves down upon the first spot of level ground we could find. We had neither provisions nor blankets; and our clothing was by no means suitable for passing the night in so bleak

and inhospitable a situation. We could not, however, proceed without imminent danger from precipices; and by the aid of a good fire, and no ordinary degree of fatigue, found ourselves able to sleep during a greater part of the night.

15th. At day break on the following morning, the thermometer stood at 38°. As we had few comforts to leave, we quitted our camp as soon as [223] the light was sufficient to enable us to proceed. We had travelled about three hours when we discovered a dense column of smoke rising from a deep ravine on the left hand. As we concluded this could be no other than the smoke of the encampment where we had left our blankets and provisions, we descended directly towards it. The fire had spread and burnt extensively among the leaves, dry grass, and small timber, and was now raging over an extent of several acres. This created some apprehension, lest the smoke might attract the notice of any Indians who should be at that time in the neighbourhood, and who might be tempted by the weakness of the party to offer some molestation. But we soon discovered a less equivocal cause of regret in the loss of our *cache* of provisions, blankets, clothing, &c. which had not escaped the conflagration. Most of our baggage was destroyed; but out of the ruins we collected a beggarly breakfast, which we ate, notwithstanding its meanness, with sufficient appetite. We chose a different route for the remaining part of the descent from the one taken in going up, and by that means avoided a part of the difficulty arising from the crumbled granite; but this was nearly compensated by the increased numbers of yuccas and prickly pears.

We arrived a little after noon at the boiling spring, where we indulged freely in the use of its highly aërated

and exhilarating waters. In the bottom of both these springs a great number of beads and other small articles of Indian ornament were found, having unquestionably been left there as sacrifices or presents to the springs, which are regarded with a sort of veneration by the savages. Bijeau assured us he had repeatedly taken beads and other ornaments from these springs, and sold them to the same savages who had thrown them in.⁸

A large and much frequented road passes the springs, and enters the mountains, running to the north of the high peak. It is travelled principally [224] by the bison, sometimes also by the Indians; who penetrate here to the Columbia.⁹

The men who had been left at the horse-camp about a mile below the springs, had killed several deer, and had a plentiful supply of provisions. Here the detachment dined; then mounting our horses, we proceeded towards the encampment of the main body, where we arrived a little after dark, having completed our excursion within the time prescribed.

Among the plants collected in this excursion, several appear to be undescribed. Many of them are strictly alpine, being confined to the higher parts of the mountain, above the commencement of snow.

⁸ As late as 1870 the Indians continued to make offerings to the manitou of the springs. There is an Indian legend which accounts for the effervescence and taste of the water as follows: Two hunters having come to the springs, the less successful, in envious anger, seized his rival while drinking, and held his head beneath the water until he expired. Thereupon a vapor arose, and there appeared a spirit who struck the murderer with his war club, dashing his brains into the spring and rendering the waters bitter.— ED.

⁹ The Colorado Midland now ascends Fountain Creek, east and north of the peak, approximating the line of this bison path. The stage road to the peak also ascends this cañon about four miles to Cascade, where it turns west, going around the northern and northwestern slope of the mountain.— ED.

Most of the timber which occurs on any part of the mountain is evergreen, consisting of several species of abies, among which may be enumerated the balsam fir (*A. balsamea*, Ph.); the hemlock, white, red, and black spruce (*A. canadensis*, *A. alba*, *A. rubra*, and *A. nigra*); the red cedar, and common juniper; and a few pines. One of these, which appears to have been hitherto unnoticed in North America, has, like the great white or Weymouth pine, five leaves in a fascicle; but in other respects there is little resemblance between them. The leaves are short and rather rigid; the sheaths which surround their bases short and lacerated; the strobiles erect, composed of large unarmed scales, being somewhat smaller than those of *P. rigida*, but similar in shape, and exuding a great quantity of resin. The branches, which are covered with leaves chiefly at the ends, are numerous and recurved, inclining to form a dense and large top; they are also remarkably flexile, feeling in the hand somewhat like those of the *dirca palustris*, L. From this circumstance, the specific name, *flexilis*, has been proposed for this tree; which is, in several respects, remarkably contrasted with the *P. rigida*. It inhabits the arid plains subjacent to the Rocky Mountains, and extends up their sides to the region of perpetual frost. The [225] fruit of the *pinus flexilis* is eaten by the Indians and the French hunters, as that of another species of the same genus is eaten by the inhabitants of some parts of Europe.

The creek on which the party encamped during the three days occupied in making the excursion above detailed, is called Boiling-spring creek, having one of its principal sources in the beautiful spring already described.¹⁰ It is

¹⁰ Boiling Spring (now Fountain) Creek unites with Monument Creek (see preceding volume, note 146) at Colorado Springs, to form Fountain River.

skirted with a narrow margin of cotton-wood and willow trees; and its banks produce a small growth of rushes, on which our horses subsisted principally, while we lay encamped here. This plant, the common rush (*equisetum hyemale*, Ph.), found in every part of the United States, is eaten with avidity by horses, and is often met with in districts where little grass is to be had. When continued for a considerable time its use proves deleterious.

The recent track of a grizzly bear was observed near the camp; and at no great distance one of those animals was seen and shot at by one of the hunters, but not killed.

In the timber along the creek, the sparrow-hawk, mocking-bird, robin, red-head woodpecker, Lewis' woodpecker, dove, winter wren, towhe, bunting, yellow-breasted chat, and several other birds were seen.

Orbicular lizards were found about this camp, and had been once or twice before noticed near the base of the mountains.

A smoke, supposed to be that of an Indian encampment, was seen rising from a part of the mountains, at a great distance towards the north-west. It had been our constant practice, since we left the Missouri, to have sentinels stationed about all our encampments, and whenever we were not on the march by day, and until nine o'clock in the evening; it was the duty of one of the three Frenchmen to reconnoitre at a distance from camp, in every

The map does not show Boiling Spring Creek, but applies the name to Fountain River and its other branch, Monument Creek, to which it gives an exaggerated length. Fountain River was called *La Rivière de la Fontaine qui Bouille* (River of the Boiling Spring), from the Manitou springs already described; the French name, in various forms, has generally been preferred to the English. Frémont calls the stream, in more correct French, "*Fontaine-qui-bouit*," and "*Fontaine River*" is still sometimes used. The city of Pueblo is situated at its confluence with the Arkansas; Pike called this confluence "*grand forks*."—ED.

direction, and to report immediately when any thing [226] should be discovered indicating that Indians were in the vicinity. Precautions of this kind are necessary to prevent surprisal, and invariably are practised by the Indians of the west, both at their villages and on their march.

On the 14th, Lieutenant Swift returned to camp, having performed the duties on which he was sent. A base was measured near the camp, and observations taken for ascertaining the elevation of the peak.

Complete sets of observations for latitude and longitude were taken, which gave $38^{\circ} 18' 19''$ north, and $105^{\circ} 39' 44''$ west from Greenwich, or $28^{\circ} 39' 45''$ from Washington, as the position of our camp. The bearing of the Peak from this point is north 67° west, and the distance about twenty-five miles.¹¹

In all the prairie-dog villages we had passed small owls had been observed moving briskly about, but they had hitherto eluded all our attempts to take them. One was here caught, and on examination, found to be the species denominated coquimbo, or burrowing owl, (*strix cunicularia*.) This fellow-citizen of the prairie-dog, unlike its grave and recluse congeners, is of a social disposition, and does not retire from the light of the sun, but endures the strongest mid-day glare of that luminary, and is in all respects a diurnal bird. It stands high upon its legs, and flies with the rapidity of the hawk. The coquimbo

¹¹ Lieutenant Swift's trigonometrical measurement of the elevation of Pike's Peak was quite accurate. If to his calculation of $8,507\frac{1}{2}$ feet above the plain the correct elevation of the latter be added, the sum is within a few feet of the now accepted height; but, as in Pike's measurement, the result was invalidated by an erroneous estimate of the height of the plain (3,000 feet instead of about 5,700). The latitude and longitude as calculated for this camp afford another instance showing the error in the observations made by the expedition. The correct figures for Colorado Springs are $38^{\circ} 49' 41.67''$ north latitude, and $104^{\circ} 49' 15.10''$ longitude west of Greenwich.— ED.

owl, both in Chili and St. Domingo, agreeably to the accounts of Molina and Viellot, digs large burrows for its habitations, and for the purposes of incubation; the former author gives us to understand that the burrow penetrates the earth to a considerable depth, whilst Viellot informs us that in St. Domingo, the depth is about two feet.¹²

With us the owl never occurred but in the prairie-dog villages, sometimes in a small flock much scattered, and often perched on different hillocks, at a distance deceiving the eye with the appearance of [227] the prairie-dog, itself, in an erect posture. They are not shy, but readily admit the hunter within gun-shot; but on his too near approach, a part or the whole of them rise upon the wing, uttering a note very like that of the prairie-dogs, and alight at a short distance, or continue their flight beyond the view.

The burrows into which we have seen the owl descend, resembled in all respects those of the prairie-dog, leading us to suppose, either that they were common, though, perhaps not friendly occupants of the same burrow, or that the owl was the exclusive tenant of a burrow gained by right of conquest. But it is at the same time possible, that, as in Chili, the owl may excavate his own tenement.

From the remarkable coincidence of note between these

¹² Giovanni Ignazio Molina was born in Chili, of Italian parents, in 1740. When the Jesuits were expelled from that country (1767) he joined their order and went to Italy, where he became a priest and teacher. His *Compendio di Storia geografica naturale e civile del Chili* (Bologna, 1776) was translated into the principal European languages, and an American edition was published under the title *Geographical, Natural, and Civil History of Chili* (Middletown, Connecticut, 2 vols., 1808).

Louis Jean Pierre Vieillot was a French zoölogist and author of voluminous works on ornithology. Among his writings was *Histoire naturelle des oiseaux de l'Amérique septentrionale, depuis Saint-Dominique jusqu' à la baie d'Hudson* (Paris, 1807 and annually thereafter).—ED.

two widely distinct animals, we might take occasion to remark the probability of the prairie-dog being an unintentional tutor to the young owl, did we not know that this bird utters the same sounds in the West Indies, where the prairie-dog is not known to exist.

It may be that more than a single species of diurnal owl has been confounded under the name of *cunicularia*, as Viellot states his bird to be somewhat different from that of Molina; and we cannot but observe that the eggs of the bird described by the latter are spotted with yellow, whilst those of the former are immaculate.

As our specimens do not in all respects correspond with the descriptions by the above-mentioned authors, of the Coquimbo owl, we have thought proper to subjoin such particulars as seem necessary to be noted, in addition to the description already given by those authors.

The general colour is a light burnt brown spotted with white; the larger feathers five or six-banded with white, each band more or less widely interrupted by the shaft, and their immediate margins darker than the other portions of the feathers; the [228] tips of these feathers are white or whitish; the exterior primary feather is serrated, shorter than the three succeeding ones, and equal in length to the fifth; the bill is tinged with yellow on the ridges of both mandibles; the tarsi and feet distinctly granulated, the former naked behind, furnished before, near the base, with dense, short feathers, which, towards the toes, become less crowded, and assume the form of single hairs; those on the toes are absolutely setaceous and scattered; the lobes beneath the toes are large and granulated.

On the plains about our encampment, were numerous natural mounds, greatly resembling some of the artificial works so common in the central portions of the great

valley of the Mississippi. About the summits of these mounds, were numerous petrifications, which were found to be almost exclusively casts of bivalve shells approaching the genus *cytherea*, and usually from one half to one and an half inches in width.

On the evening of the fifteenth, finding all our stock of meat injured by too long keeping, four men were sent out on horseback to hunt. At the distance of six miles from camp, they found a solitary bison, which they killed, but concluding from its extreme leanness and the ill-savour of the flesh, that the animal was diseased, they took no part of it. On the following morning they returned, bringing nothing. We were now reduced to the necessity of feeding on our scanty allowance of a gill of parched maize per day to each man, this being the utmost that our limited stores would afford.

On the 16th of July, we moved from our encampment on Boiling-spring creek, in a south-western direction to the Arkansa. This ride of twenty-eight miles, which we finished without having once dismounted from our horses, occupied about twelve hours of a calm, sultry day, in every respect like the preceding, in which the thermometer in the shade had [229] ranged from 90 to 100°. Our route lay across a tract of low but somewhat broken sand-stone, of an uncommonly slaty structure. It is fine-grained, with an argillaceous cement, and of a light gray or yellowish white colour. It contains thin beds of bituminous clay-slate; and we saw scattered on the surface some small crystals of selenite. It is traversed by numerous deep ravines, in which at this time, not a drop of water was to be found. The soil is scanty, and of incurable barrenness. The texture of the rock is so loose and

porous as to unfit it for retaining any portion of the water which falls upon it in rains. A few dwarfish cedars and pines are scattered over a surface consisting of a loose dusty soil, intermixed with thin lamellar fragments of sandstone, and nearly destitute of grass or herbage of any kind. Our sufferings from thirst, heat, and fatigue, were excessive, and were aggravated by the almost unlimited extent of the prospect before us, which promised nothing but a continuation of the same dreary and disgusting scenery. Late in the afternoon we arrived at the brink of the precipice which divides the high plains from the valley of the Arkansa; this is here narrow, and so deeply sunk in the horizontal sandstone, that although there are trees of considerable size growing along the river, they do not rise to the level of the surface of the great plain, and from a little distance on either side, the valley is entirely hid. There our thirst and impatience were for some time tantalized with the view of the cool and verdant valley and copious stream of the Arkansa, while we were searching up and down for a place where we could descend the precipice.

We at length found a rugged ravine, down which we with some difficulty wound our way to the base of the cliff, where lay a beautiful level plain, having some scattered cotton-wood and willow trees, and affording good pasture for our horses. Here we encamped, and the remainder of the afternoon was [230] spent in making preparations to despatch a small party up the Arkansa to the mountains on the succeeding day.

A small doe was killed near camp, which, though extremely lean, proved an important addition to our supply of provisions.

The place where we encamped was supposed to have been near where Pike's block-house formerly stood, but we sought in vain for the traces of anything resembling the work of a white man.¹³

[231] CHAPTER II [IX]

A Detachment from the Exploring Party Ascend the Arkansa to the Mountains — Bell's Springs — Descent of the Arkansa — Grizzly Bear.

ON the morning of the 17th Captain Bell, with Dr. James and two men, took their departure, proposing to ascend the Arkansa to the mountains. They were furnished with provisions for two days, according to the scanty allowance to which we were all reduced. The river valley was found so narrow, and so obstructed by the timber and the windings of the stream, as greatly to impede the travelling; we therefore resolved to leave it, and pursue our journey in the open plain at a distance from the river. The course of the Arkansa, for the first twenty miles from the mountains, is but little south of east. It enters the plain at the extremity of an extensive amphitheatre, formed by the continued chain of the mountains on the west and north-west, and by the projecting spur which contains the high peak on the east. This semicircular area is about thirty miles in length from north to south,

¹³ Pike wrote in his journal: "Nov. 24th [1806]. Early in the morning we cut down 14 logs, and put up a breast work, five feet high on three sides and the other thrown on the river" (see Coues, *Pike's Expeditions*, p. 452). The structure stood on the south side of the Arkansas, a little above where the mouth of Fountain River was at that time; but the exact spot cannot be identified, as the course of the river has since changed considerably. Long's party looked for it, however, in an entirely wrong place. Their course southwest from the camp on Fountain River brought them to the Arkansas several miles above its mouth (near Turkey Creek); besides which, they were on the wrong side for Pike's old redoubt.— ED.

and probably twenty wide at its southern extremity. The mountains which bound it on the west are high, but at this time had little snow on them. The surface of the area is an almost unvaried plain, and is based upon the stratum of argillaceous sandstone. Near the base of the mountain the same sandstone is observed, resting in an inclined position against the primitive rocks. It forms a range like that already mentioned, when speaking of the mountains at the Platte, separated from the primitive by a narrow secluded valley. On entering this valley we found [232] the recent trace of a large party of Indians, travelling with skin lodges, who appeared to have passed within a very short time. This trace we followed, until we found it entered the mountains in the valley of a small stream which descends to the Arkansa from the north-east. This we left on the east, and traversing a rough and broken tract of sandstone hills, arrived, after a toilsome day's journey of about thirty miles, at the spot where the Arkansa leaves the mountains.

Here we found several springs, whose water is impregnated with muriate of soda and other salts. They rise near each other, in a small marshy tract of ground, occupying the narrow valley of the river, at the point where it traverses the inclined sandstone ridge. Very little water flows from them, and the evaporation of this has left a crystalline incrustation, whitening the surface of the surrounding marsh. The springs are small excavations, which may perhaps have been dug by the Indians or by white hunters. They appear to remain constantly full; they all contain muriate of soda, and the smell of sulphuretted hydrogen is perceptible at considerable distance from them. They differ in taste a little from each other, hence the account given of them by the hunters, that one

is sour, another sweet, a third bitter, and so on. One contains so much fixed air as to give it some pungency, but the water of all of them is unpalatable. The sweetish metallic taste observed in the water of one or two, appears to depend on an impregnation of sulphate of iron.

The sulphates of magnesia and soda will probably be found to exist in these springs; if their water should hereafter be analysed, they may also be found to possess some active medicinal properties. They are seven in number, and have received the name of Bell's Springs, in compliment to their discoverer. Though the country around them abounds with bisons, deer, &c. they do not appear to be frequented, [233] as most saline springs are, by these or other herbivorous animals.¹⁴

It was near sunset when Captain Bell and his party arrived at the springs, and being much exhausted by their laborious march, they immediately laid themselves down

¹⁴ The point here reached by Bell's party is the site of Cañon City, Fremont County, at the lower end of the Grand Cañon of the Arkansas, better known as the Royal Gorge, through which now passes the Denver and Rio Grande Railroad. The railroad engineers triumphed over the obstacles which to our party seemed to render the cañon almost impassable, by lowering tools, materials, provisions, mules, and men into the chasm by ropes attached to the overhanging cliffs. In one place it was found necessary, for want of a road-bed in the narrow gorge, to suspend the track by bridgework anchored to the mountain side.

Pike's route from Cañon City to the upper Arkansas and back has been much discussed; however, he did not go through the Royal Gorge. Dr. Coues thinks that he went north from Cañon City, up Oil Creek, crossing the dividing ridge at its source and passing into South Park, to the South Platte River. Thence he crossed South Park to the westward, and penetrated the Park Range to the upper Arkansas, which he explored, mistaking it for Red River. Descending the river, the party scattered near the upper end of Royal Gorge, and passed around it by various routes through the mountains. Pike himself essayed the passage of the cañon on the frozen river, but was compelled to abandon the channel when about half-way through it. The party reached the site of Cañon City, which it had left December 10, 1806, on January 5, 1807. See Coues, *Pike's Expeditions*, pp. 464-478.—ED.

to rest under the open canopy, deferring their examinations for the following morning.

The sandstone near the springs is hard, though rather coarse, and of a dark gray or brownish yellow colour. In ascending the Arkansa on the ensuing morning, we found the rock to become more inclined, and of a redder colour, as we approached the primitive, until, at about half a mile from the springs, it is succeeded by the almost perpendicular gneiss rock, which appears here at the base of the first range of the mountains. We have noticed that this particular spot is designated, in the language of hunters, as "the place where the Arkansa *comes out* of the mountains;" and it must be acknowledged, the expression is not entirely inapplicable. The river pours with great impetuosity and violence through a deep and narrow fissure in the gneiss rock, which rises so abruptly on both sides to such a height, as to oppose an impassable barrier to all further progress. According to the delineation of Pike's route, upon the map which accompanies his work, he must have entered the mountains at this place; but no corroboration can be derived from his journal. It appears almost incredible that he should have passed by this route, and have neglected to mention the extreme difficulty which must have attended the undertaking. The detached party returned to the encampment of the main body on the 18th.

The immediate valley of the Arkansa, near the mountains, is bounded by high cliffs of inclined sandstone. At a short distance below these disappear, and a sloping margin of alluvial earth extends on each side to the distance of several miles. Somewhat farther down horizontal sandstone appears, confining [234] the valley to a very narrow space, and bounding it within perpendicular precipices

on each side. Seven miles from the mountains, on the left hand side of the Arkansa, is a remarkable mass of sandstone rocks, resembling a large pile of architectural ruins.

From this point the bearing of James's Peak¹⁵ was found to be due north.

The Arkansa valley, between our encampment of the 16th and the mountains, a distance of about thirty miles, has a meagre and gravelly soil, sustaining a growth of small cotton-wood trees, rushes, and coarse grass: above the rocky bluffs, on each side, spreads a dreary expanse of almost naked sand, intermixed with clay enough to prevent its drifting with the wind, but not enough to give it fertility. It is arid and sterile, bearing only a few dwarfish cedars, and must for ever remain desolate.

During the time of Captain Bell's absence on the

¹⁵ "From information derived from the Indians and hunters who have frequently visited this part of the country, as also from the account given by Pike, relative to this peak, it appears that no person, either civilized or savage, has ever ascended to its summit, and that the ascent was deemed utterly impracticable. Dr. James having accomplished this difficult and laborious task, I have thought proper to call the peak after his name, as a compliment to which his zeal and perseverance, together with the skilful attention with which he has examined its character and productions, give him the fairest claim. Pike has indeed given us notice that there is such a peak, but he only saw it at a distance; the unfavourable circumstances under which he came into its neighbourhood preventing his arrival even at its base. He attempted to ascertain its altitude, but it is believed his estimate is very erroneous." Ext. from Maj. Long's MS. Notes of July 15th, 1820.—JAMES.

Comment by Ed. Height of Pike's Peak generally accepted as correct, 14,147 feet; Pike's estimate, 18,581. See *ante*, note 11. Pike wrote in his journal: "I believe no human being could have ascended to its pinical;" but it must be borne in mind that he reached the region late in November, when the difficulty of the ascent is immensely greater than at the season (July) when James's party made their successful attempt. The claim of Dr. James to the honor of being the first to reach the summit remains undisputed; but the peak has long since ceased to bear his name. When Frémont visited Colorado in 1843 he adopted the present appellation, which he found in local use among the traders, and the rival name soon fell into disuse by cartographers.

excursion above detailed, observations were made at camp for latitude, longitude, &c., and all the party were busy in their appropriate pursuits. Among the animals taken here was the four-lined squirrel, (*S. 4-vittatus*, Say) a very small and very handsome species, very similar in its dorsal markings to the *getulus*, L.; but as far as we can judge from the description and figures of the latter species by Buffon,¹⁶ our animal is distinguished by its striped head, less rounded ears, and much less bushy, and not striated and banded tail, and by its smaller size. The *getulus* is also said to have no thumb wart.

It is an inhabitant of the Rocky Mountains about the sources of the Arkansa and Platte. It does not seem to ascend trees by choice, but nestles in holes and on edges of the rocks. We did not observe it to have cheek-pouches.

Its nest is composed of a most extraordinary quantity of the burrs of the xanthium branches, and other portions of the large upright cactus, small [235] branches of pine-trees and other vegetable productions, sufficient in some instances to fill the body of an ordinary cart. What the object of so great, and apparently so superfluous an assemblage of rubbish may be, we are at a loss to conjecture; we do not know what peculiarly dangerous enemy it may be intended to exclude by so much labour.

Their principal food, at least at this season, is the seeds of the pine, which they readily extract from the cones.¹⁷

¹⁶ Jean Louis Leclerc Buffon (1707-88), was keeper of the Royal Gardens and Museum in Paris, and compiler of a large portion of the forty-volume work entitled *Histoire Naturelle, Générale et Particulière* (Paris, 1749-1804), which was completed, after his death, by Lacépède (see *post*, note 26). Buffon is noteworthy for having anticipated the theory of evolution.—ED.

¹⁷ Genus *Sciurus*, L.—*S. quadrivittatus*, SAY.—Head brownish intermixed with fulvous, and with four white lines, of which the superior one on each side passes from the tip of the nose immediately over the eye to the superior base of

There is also another species¹⁸ inhabiting about the mountains, where it was first observed by those distinguished travellers, Lewis and Clarke, on their expedition to the Pacific Ocean. It is allied to the *Sc. striatus*, and belongs to the same subgenus (*tamias illig.*) but it is of a somewhat larger stature, entirely destitute of the vertebral line, and is further distinguished by the lateral lines commencing before the humerus, where they are broadest by the longer nails of the anterior feet, and by the armature of the thumb tubercle. It certainly cannot with propriety be regarded as a variety of the *striatus*, and we are not aware that the latter species is subject to vary to any remarkable degree in this country. But the species to which, in the distribution of its colours, it is most closely allied, is unquestionably the *Sc. bilineatus* of Geoffroy.¹⁹ A specimen is preserved in the Philadelphia Museum.

the ear; and the inferior one passes immediately beneath the eye to the inferior base of the ear; *ears* moderate, semi-oval, incisores reddish-yellow; *back* with four broad lines, and alternate mixed black and ferruginous ones; *sides* fulvous, beneath whitish; *tail* moderate, hair black at base, then fulvous black in the middle, and paler fulvous at tip; *beneath* fulvous with a submarginal black line; *thumb* of the anterior feet a prominent tubercle.

Length from the nose to the base of the tail	.	.	.	4½ inches.
—— of the tail	.	.	.	3
—— of the hair at the tip of the tail	.	.	.	1 nearly.

— JAMES.

¹⁸ Genus *Sciurus*, L.— *S. lateralis*, SAY.— *Above* brownish cinereous intermixed with blackish; on each side of the back a dull yellowish-white dilated line, broader before, margined above and beneath with black, originating upon the neck anterior to the humerus, and not attaining the origin of the tail; no appearance of a vertebral line; thigh, neck anterior to the tip of the white line, and top of the head tinged with ferruginous; *orbits* whitish; *tail* short, thin, with a submarginal black line beneath; *nails* of the anterior feet elongated: *thumb tubercle* furnished with a broad nail; *sides* dull yellowish-white; *beneath* pale, intermixed with blackish.— JAMES.

¹⁹ Étienne Geoffroy Saint-Hilaire (1772-1844) began the collection of animals for the Jardin des Plantes, and after 1794 was the collaborator of Cuvier. He was a prolific writer, and previous to Long's expedition had prepared a *Catalogue des Mammifères du Muséum national d'Histoire naturelle* (1813).— ED.

The cliff swallow²⁰ is here very frequent, as well as in all the rocky country near the mountains. This species attaches its nest in great numbers to the rocks in dry situations, under projecting ledges. The nest is composed of mud, and is hemispherical, with the entrance near the top somewhat resembling a chymist's retort, flattened on one side, and with the neck broken off for the entrance. This entrance, which is perfectly rounded sometimes, projects a little and turns downward. It is an active bird, flying about the vicinity of the nest in every direction, [236] like the barn swallow. In many of the nests we found young hatched, and in others only eggs.

A fine species of serpent²¹ was brought into camp by one of the men. It is new, and seems to be peculiar to this region.

A very beautiful species of emberiza²² was caught; it

²⁰ *Hirundo lunifrons*, SAY.— Above brownish-black, more or less varied with violaceous on the back and wing-coverts; *top of the head* exclusively blackish-violaceous, a large white frontal lunule; *bill* black; *rump* and *tail coverts* pale ferruginous; *chin, throat, and neck* beneath, dark ferruginous extending in a narrow band upon the hind head; *breast* pale rufous ash; *axillæ* and *inferior wing coverts* dirty brownish; *shoulders* dull whitish, with small black and pale ferruginous spots; *belly* and *vent* flanks white, obsoletely dashed with brown; *inferior tail coverts* dusky, margined with white; *tail* entire, not surpassing the tips of the wings, the exterior feather margined with white on the inner web; *wing* and *tail-shafts* brown above, white beneath; *the tail feathers* in some lights have a slightly-banded appearance. Length $5\frac{1}{2}$ inches.— JAMES.

²¹ Genus *Coluber*.— *C. testaceus*, SAY.— Pale sanguineous, or testaceous above, beneath sanguineous immaculate. Pl. 198. Sc. 80?

This is a large species equal in size to the *C. constrictor*. It moves with great rapidity, and in general form and size it resembles *C. constrictor*. The scales are large. A specimen is in the Philadelphia Museum.— JAMES.

²² *Emberiza amæna*, SAY.— *Head* and *neck* bluish green; *back* brownish black more or less intermixed with blue and a little brown ferruginous; *rump* pure blue; *smaller wing coverts* dull blue, brown at base, and tipped with white, forming a band; *greater wing coverts* blackish, tipped with white, forming a narrow band; *wing* and *tail feathers* blackish-brown with blue exterior margins; *belly, inferior tail coverts* and *lower part of the breast* white; *superior portion of the breast* pale ferruginous; *neck* bright green; *bill* and *feet* pale.— JAMES.

is rather smaller than the indigo bunting, (*emberiza cyanea*) with a note entirely dissimilar. It was observed to be much in the grass, rarely alighting on bushes or trees.

We also captured a rattle-snake,²³ which, like the *tergeminus*, we have found to inhabit a barren soil, and to frequent the villages of the arctomys of the prairie; but its range appeared to us confined chiefly to the vicinity of the Rocky Mountains. Its rattle is proportionally much larger than that of the species just mentioned, and the head is destitute of large plates. It seems, by the number of plates and scales, to be allied to the *atracaudatus* of Bosc and Daud, but their description induces the conclusion that their species is entirely white beneath.²⁴ It is also allied to the *crotalus durissus*, L. (*C. rhombifer*, Beaur.), but it is smaller, and the dorsal spots are more rounded. A specimen is placed in the Philadelphia Museum.

The only specimens of organic reliquiæ from this

²³ Genus *Crotalus*, LIN.—*C. confluentus*, SAY.—Brownish, varied with greenish-yellow, a triple series of brown spots, the anterior vertebral ones confluent, and the posterior ones separated into bands.

Body brownish cinereous, varied with greenish yellow; a triple series of fuscous spots; dorsal series consisting of about forty-four large transversely oblong oval spots, each widely emarginate before and behind, and, excepting the posterior ones, edged with greenish-white, the ten or twelve anterior ones, crowded and confluent, those of the thicker part of the body separate, those near the cloaca and upon the tail united with the spots of the lateral series, and forming bands; lateral series, spots rounded, opposite to those of the back; between the dorsal and lateral series is a series of obsolete, fuliginous spots, alternating with those of the two other series; *head* above scaly, scales of the superior orbits, and of the anterior margin, larger and striated; *beneath* yellowish-white, immaculate. Plates of the body 179; of the tail 27.—JAMES.

²⁴ Louis Augustin Guillaume Bosc (1759-1828) visited the United States in 1796; later he taught at the Versailles Zoölogical Garden. It is uncertain as to which particular work is here referred to.

François Marie Daudin, whose specialty was reptiles, wrote *Histoire naturelle, générale et particulière des Reptiles* (Paris, 1802-04), which is probably the work cited.—ED.

vicinity, which we have been so fortunate as to preserve, are very indistinct in their characters, and are only impressions in the gray sandstone. One of them appears to have been a phytoid millepore, and the other a sub-equilateral bivalve, which may possibly have been a mactra. It is suborbicular, and its surface is marked by concentric grooves or undulations. At a previous encampment numerous fragments of shells, of a dusky colour, occurred in the same variety of sandstone, and amongst these is an entire valve of a small species of ostrea, of a shape very like that of a pinna, and less than half an inch in length. We have a specimen, from another [237] locality, of a very dark coloured compact, and very foetid impure limestone, containing still more blackish fragments of bivalves, one of which presents the form of a much arcuated mytillus? but as the back of the valve only is offered to examination, it may be a chama, but it seems to be perfectly destitute of sculpture.

Another specimen from the mountains near the Platte river, is a reddish brick-coloured petrosiliceous mass, containing casts and impressions of a grooved terebratula.

Hunters were kept out during the day on the 17th, but killed nothing. At evening they were sent out on horseback, but did not return till 3 P. M. on the following day. They had descended the river twelve miles, finding little game. They had killed one deer, one old turkey with her young brood of six. This supply proved highly acceptable as we had for some time been confined almost entirely to our small daily allowance of corn-meal. At the commencement of our tour we had taken a small supply of sea-biscuit. At first these were distributed one to each man three times per day, afterwards two, then one for two, and then one for three days, till our stock of

bread was so nearly exhausted, that it was thought proper to reserve the little that remained for the use of the sick, should any unfortunately require it. We then began upon our parched maize, which proved an excellent substitute for bread. This was issued at first at the rate of one pint per day for four men, no distinction being made in this or any other case between the officers and gentlemen of the party, and the citizens and soldiers attached to it. When we arrived at the Arkansa, about one-third part of our supply of this article was exhausted, and no augmentation of the daily issues could be allowed, although our supplies of meat had been for some time inadequate to the consumption of the party.

[238] We had a little coffee, tea, and sugar, but these were reserved as hospital stores; our three gallons of salt were expended. We now depended entirely upon hunting for our subsistence, as we had done for meat ever since we left the Pawnee villages, our pork having been entirely consumed before we arrived at that place. We, however, apprehended little want of meat after we should have left the mountains, as we believed there would be plenty of bisons and other game upon the plains over which we were to travel.

At 2 o'clock P. M. on the eighteenth, rain began to fall which continued during the remainder of the day, and made it impossible for us to complete the observations we had begun.

The Arkansa, from the mountains to the place of our encampment, has an average breadth of about sixty yards, it is from three to five feet deep, and the current rapid. At the mountains, the water was transparent and pure, but soon after entering the plains it becomes turbid and brackish.

July 19th. This morning we turned our backs upon the mountains, and began to move down the Arkansa. It was not without a feeling of something like regret, that we found our long contemplated visit to these grand and interesting objects, was now at an end. One thousand miles of dreary and monotonous plain lay between us, and the enjoyments and indulgences of civilized countries. This we were to traverse in the heat of summer, but the scarcity of game about the mountains rendered our immediate departure necessary.

A large and beautiful animal²⁵ of the lizard kind (belonging to the genus *ameiva*) was noticed in this day's ride. It very much resembles the *lacerta ameiva*, as figured and described by Lacepède,²⁶ but the tail is proportionably much longer. Its movements were so

²⁵ Genus *Ameiva*.—*A. tessellata*, SAY. Tesselated lizard.—The back and sides of the body and neck are marked by nine or ten longitudinal lines, and eighteen or twenty transverse ones, dividing the whole surface in a tessellated manner, the interstitial quadrate spaces being black; these lines are light brown on the back, and assume a yellow tint on the sides; the scales of these portions of the body are very small, convex, and rounded; *the top of the head* is olivaceous, covered by plates arranged thus: 2 with an intermediate small one at their tips; 1, 2, 1, the largest, 2, and 3; superior orbits of the eyes with four plates, of which the two intermediate ones are much the largest; *belly* bluish white; *throat* and *neck* tinged with yellow, and covered with somewhat larger scales than those of the back; *anterior feet* yellowish within, and covered with minute scales; on the exterior and posterior sides greenish white with confluent black spots and large scales; *posterior feet* behind greenish white with confluent black spots and minute scales; the anterior side yellowish covered with large scales; pores of the thigh very distinct and prominent; *tail* elongated, rounded above, light brown, with a few lines of black spots near the base; *beneath* yellowish white immaculate, the scales carinated, and placed in transverse series. Total length 1 foot, tail 8½ inches.—JAMES.

²⁶ Bernard Germain Étienne de la Ville, Count de Lacépède (1756-1825), became Buffon's assistant in the Jardin du Roi about 1784, and continued the *Histoire naturelle* after the latter's death. Lacépède entered politics under Bonaparte, and was successively senator (1799), grand chancellor of the Legion of Honor (1803), and minister of state (1809). After the Restoration, he was made a peer.—ED.

extremely rapid that it was with much difficulty we were able to capture a few of them.

[239] We had proceeded about eight or ten miles from our camp, when we observed a very considerable change in the character both of the river and its valley, the former becoming wider, less rapid, and filled with numerous islands; the latter bounded by sloping sandhills, instead of perpendicular precipices. Here the barren cedar-ridges, formerly mentioned, are succeeded by still more desolate plains, with scarce a green or a living thing upon them, except here and there a tuft of grass, an orbicular lizard, basking on the scorching sand, a solitary pimelia, a blaps, or a galeodes. Among the few stunted and withered grapes, we distinguished a small cespitose species of *agrestis*, and several others which are thought to be undescribed. Near the river, and in spots of uncommon fertility, the unicorn plant, (*martynia proboscidea*, Ph.) was growing in considerable perfection. This plant, which is sometimes cultivated in the gardens, where it is known by the name of cuckold's horns, is a native of the Platte and Arkansa, and is occasionally seen in every part of the open country from St. Louis westward to the mountains.

A little before noon, we crossed a small stream which was called Castle Rock creek, from a remarkable pile of naked rocks, and halted for dinner on the bank of the river.²⁷

In the morning, Mr. Peale and two hunters had taken a different route from the remainder of the party, hoping to meet with game. They arrived at a small grove of

²⁷ The distance travelled since leaving Royal Gorge indicates Beaver Creek, in eastern Fremont County, as probably the one here called Castle Rock Creek.—ED.

timber, where it was thought deer might be found; they therefore left their horses in care of one of the hunters, and entered the wood on foot. The man had been left alone but a short time, when he discovered a large grizzly bear (*Ursus horribilis*, Ord.) approaching rapidly towards him, and without staying to make any inquiry into the intentions of the animal, mounted his horse and fled.

This animal is widely distinct from any known [240] species of bear, by the essential character of the elongated anterior claws, and rectilinear or slightly arcuated figure of its facial profile. In general appearance it may be compared to the alpine bear, (*U. arctus*), and particularly to the Norwegian variety. The claws, however, of these appear to be of the usual form and not elongated, and the facial space included between the eyes is deeply indented; they also differ in their manners, and climb trees, which the grizzly bear is never known to do.

Lewis and Clarke frequently saw and killed these bears during their celebrated expedition across the continent. They mention one which was nine feet long from the nose to the tip of the tail. The forefoot of another was nine inches across, its hind foot eleven and three quarter inches long, exclusive of the talons, and seven inches wide. The talons of a third were six and one-fourth inches long.

They will not always attack, even when wounded. "As they fired, he did not attempt to attack, but fled with a most tremendous roar, and such was its extraordinary tenacity of life, that although he had five balls passed through his lungs, and five other wounds, he swam more than half across the river to a sand-bar, and survived twenty minutes. He weighed between five or six hundred pounds, at least, and measured eight feet seven and a half

inches from the nose to the extremity of the hind feet.”—*Lewis and Clarke*.

One lived two hours after having been shot through the centre of his lungs, and whilst in this state, he prepared for himself a bed in the earth two feet deep and five feet long, after running a mile and a half. The fleece and skin were a heavy burden for two men, and the oil amounted to eight gallons.

Another shot through the heart, ran at his usual pace nearly a quarter of a mile, before he fell.

This species, they further inform us, in all its variations [241] of colouring, is called hohhost by the Chopunnish Indians.²⁸ These travellers mention another species of bear, which seems to be related to the alpine bear, and which is most probably a new species. It climbs trees, and is known to the Chopunnish Indians by the name of Yackak. They also inform us, that the copulating season occurs about the 15th of June.²⁹

The Indians of the Missouri sometimes go to war in small parties against the grizzly bear, and trophies obtained from his body are highly esteemed, and dignify the fortunate individual who obtains them. We saw, on the necks of many of their warriors, necklaces, composed of the long fore-claws separated from the foot, tastefully arranged in a radiating manner; and one of the band of Pawnee warriors, that encountered a detachment of our party near the Kanza village, was ornamented with the entire skin of the fore-foot, with the claws remaining upon it, suspended on his breast.

²⁸ Another name for the Nez Percés. See Franchère's *Narrative*, in our volume vi, note 145.—ED.

²⁹ This description of the two species of bears occurs under date of May 3, 1806. See *Original Journals of Lewis and Clark Expedition*, v, p. 65.—ED.

It is not a little remarkable that the grizzly bear, which was mentioned at a very early period, by Lahontan,³⁰ and subsequently by several writers, is not, even at this day, established in the zoological works as distinct species; that it is perfectly distinct from any described species, our description will prove. From the concurrent testimony of those who have seen the animal in its native country, and who have had an opportunity of observing its manners, it is, without doubt, the most daring and truly formidable animal that exists in the United States. He frequently pursues and attacks hunters; and no animal, whose swiftness or art is not superior to his own, can evade him. He kills the bison, and drags the ponderous carcass to a distance to devour at his leisure, as the calls of hunger may influence him.

The grizzly bear is not exclusively carnivorous, as has by some persons been imagined; but also, and perhaps in a still greater degree, derives nourishment [242] from vegetables, both fruits and roots; the latter he digs up by means of his long fore-claws.

That they formerly inhabited the Atlantic states, and that they were then equally formidable to the Indians, we have some foundation for belief in the tradition of the Delaware Indians, respecting the big naked bear; the last one of which they believe formerly existed east of the Hudson river, and which Mr. Heckewelder³¹ assures us,

³⁰ On Lahontan see J. Long's *Voyages*, in our volume ii, note 3; also Lahontan, *Voyages in North America* (Thwaites, ed., Chicago, 1904).—ED.

³¹ John Gottlieb Ernestus Heckewelder (1743-1823) was a Moravian evangelist to the Indians of Pennsylvania and Ohio, and later a United States Indian agent. He was a careful student of aboriginal speech and customs, especially those of the Delaware, and was the author of several works on these subjects. Previous to this time he had published: *Account of the History, Manners, and Customs of the Indian Nations who once inhabited Pennsylvania and the Neighboring States* (Philadelphia, 1818).—ED.

is often arraigned by the Indians before the minds of their crying children, to frighten them to quietness.

Governor Clinton, in the notes appended to his learned *Introductory Discourse*,³² says, "Dixon, the Indian trader, told a friend of mine, that this animal had been seen fourteen feet long; that notwithstanding its ferocity, it has been sometimes domesticated; and that an Indian belonging to a tribe on the head waters of the Mississippi, had one in a reclaimed state, which he sportively directed to go into a canoe belonging to another tribe of Indians then about returning from a visit. The bear obeyed, and was struck by an Indian; being considered one of the family, this was deemed an insult, was resented accordingly, and produced a war between these nations."

A half-grown specimen was kept chained in the yard of the Missouri fur-company, near Engineer Cantonment; last winter he was fed chiefly on vegetable food, as it was observed that he became furious when too plentifully supplied with animal fare. He was in continual motion during the greater part of the day, pacing backwards and forwards to the extent of his chain. His attendants ventured to play with him, though always in a reserved manner, fearful of trusting him too far or placing themselves absolutely within his grasp. He several times broke loose from his chain; on which occasions he would manifest [243] the utmost joy, running about the yard in every direction, rearing up on his hind-feet, and capering

³² Vid. Trans. of the New York Literary and Philosophical Society.—JAMES.

Comment by Ed. New York, 1815, p. 19. De Witt Clinton (1769-1828), the great promoter of the Erie Canal, was governor of New York from 1817 until his death, with the exception of one two-year term, beginning in 1822. The address referred to was delivered May 4, 1814; he was at that time president of the Literary and Philosophical Society.

about. I was present at one of these exhibitions; the squaws and children belonging to the establishment ran precipitately to their huts, and closed the doors. He appeared much delighted with his temporary freedom; he ran to the dogs who were straying about the yard, but they avoided him. In his round he came to me; and rearing up, placed his paws on my breast. Wishing to rid myself of so rough a playfellow, I turned him round; upon which he ran down the bank of the river, plunged into the water, and swam about for some time.

Mr. J. Dougherty has had several narrow escapes from the grizzly bear. He was once hunting with a companion on one of the upper tributaries to the Missouri: he heard the report of his companion's rifle; and looking round, beheld him at a little distance, endeavouring to escape from one of these bears, which he had wounded as it was advancing on him. Mr. D., attentive only to the preservation of his friend, immediately hastened to divert the attention and pursuit of the bear to himself, and arrived within rifle-shot distance just in time to effect his generous object. He lodged his ball in the animal, and was obliged to fly in his turn; whilst his friend, relieved from imminent danger, prepared for another onset, by charging his piece, with which he again wounded the bear, and relieved Mr. D. from pursuit. In this most hazardous encounter neither of them were injured, and the bear was fortunately destroyed.

Several hunters were pursued by a grizzly bear that gained rapidly upon them. A boy belonging to the party, who possessed less speed than his companions, seeing the bear at his heels, fell with his face to the soil; the bear reared up on his hind-feet over the boy, looked

down for a moment upon him, then bounded over him in pursuit of the fugitives.

A hunter, just returned from a solitary excursion [244] to the Qui Court river, informed me at Engineer cantonment, that going one morning to examine his traps, he was pursued by a bear, and had merely time to get into a small tree, when the bear passed beneath him; and without halting, or even looking up, passed on at the same pace.

Another hunter received a blow from the fore-paw of one of these animals, which carried away his eye and cheek-bone.

In proof of the great muscular power with which this animal is endowed, a circumstance related to us by Mr. J. Dougherty may be stated. He shot down a bison; and leaving the carcass to obtain assistance to butcher it, he was surprised on his return to find that it had been dragged entire, to a considerable distance, by one of these bears, and was now lodged in a concavity of the earth, which the animal had scooped out for its reception.

Notwithstanding the formidable character of this bear, we have not made use of any precautions against their attacks; and although they have been several times prowling about us in the night, they have not evinced any disposition to attack us at that season.

They appear to be more readily intimidated by the voice, than by the appearance of men.

Some grizzly bears were brought, when very young, from the country of the Sioux by Lieutenant Pike, and were presented to the Philadelphia Museum. They were kept several years in that splendid institution, secured in a strong cage; during which time they gradually increased in size, until at length they became dangerous from their strength and unsubdued ferocity, and it was judged proper

to prepare them for the cabinet. From these specimens our description is chiefly taken.³³

³³ Grizzly bear (*Ursus horribilis*, ORD).— *Hair* long, short on the front, very short between and anterior to the eyes, blacker and coarser on the legs and feet, longer on the shoulders, throat, and behind the thighs, and beneath the belly, and paler on the snout; *ears* short, rounded; *front* arquated, the line of the profile continued upon the snout, without any indentation between the eyes; *eyes* very small, destitute of any remarkable supplemental lid; *iris* burnt sienna or light reddish brown; *muffle of the nostrils* black, the sinuses very distinct and profound; *lips*, particularly the superior one, anteriorly extensile, with a few rigid hairs or bristles; *tail* very short, concealed by the hair. The hair gradually diminishes in length upon the leg, but the upper part of the foot is still amply furnished; *teeth*, *incisores* six, the lateral one with a tubercle on the lateral side; *canines* large, robust, prominent; a single false molar behind the canine, remaining *molares* four, of which the anterior ones are very small, that of the upper jaw particularly, that of the lower jaw resembling the second false molar of the common dog; *anterior feet*, claws elongated, slender *fingers*, with five suboval naked tubercles separated from the palm, from each other, and from the base of the claws by dense hair; *palm* on the anterior, half naked, transversely oval; base of the palm with a rounded naked tubercle, surrounded by the hair; *posterior feet* with the sole naked, the nails moderate, more arquated, and shorter than the anterior ones.

The nails do not in the least diminish in width at the tip, but they become smaller towards that part only from diminishing from beneath.

“Testicles suspended in separate pouches, at the distance of from two to four inches from each other.” Lewis and Clarke.

They vary exceedingly in colour, and pass through the intermediate gradations from a dark brown to a pale fulvous, and a grayish.

Dimensions (from the prepared Specimen).

	ft.	in.
Length from the tip of the nose to the origin of the tail . . .	5	2
Trunk of the tail (exclusive of the hair at tip) . . .	1	$\frac{3}{4}$
From anterior base of the ear to the tip of the nose . . .	12	
From anterior canthus of the eye to the tip of the nose . . .	6	
From orbit of the eye	$\frac{3}{4}$	
From between the eyes	$4\frac{2}{5}$	
Ears from their superior base	3	
Longest claw of anterior feet	$4\frac{1}{2}$	
Shortest ditto	$2\frac{1}{4}$	
Longest claw of the hind feet	3	
Shortest ditto	$1\frac{3}{4}$	
Hair at tip of tail	$4\frac{1}{2}$	
Length of the hair top of the head	$1\frac{3}{4}$ to 2	
beneath the ears	$2\frac{1}{2}$ to $3\frac{1}{2}$	
neck above — about	3	
shoulders above	$4\frac{1}{2}$	
throat	4	
Belly and behind the anterior legs — longest hairs . . .	6	

— JAMES.

[245] CHAPTER III [X]

Natural Mounds — Kaskaia Indian and Squaw — Preparations for a Division of the Party — Sandstones of the High Plains South of the Arkansa — Fletz Trap Formation.

IN the afternoon of the 19th of July we passed the mouth of the river St. Charles, called by Pike the Third Fork, which enters the Arkansa from the south-west. It is about twenty yards wide; and receives, eight miles above its confluence, the Green Horn creek, a small stream from the south-west. The Green Horn rises in the mountains, and passes between the Spanish peaks into the plains. These two peaks had been for several days visible, standing close to each other, and appearing entirely insulated. If they are not completely so, the other parts of the same range fall far below them in point of elevation. They are of a sharp conic form, and their summits are white with snow at midsummer.³⁴

This day we travelled twenty-five miles, the general direction of our course being a little south of east, and encamped at five P. M. in a grassy point on the north side of the river. The soil of the islands and the immediate valley of the river were found somewhat more fertile than above. Immediately after encamping, the hunters were sent out, who soon returned with two deers and a turkey.

In the evening the altitude of Antares was taken. Throughout the night we were much annoyed by mos-

³⁴ Both the St. Charles (San Carlos) and its branch, the Greenhorn, rise in the Wet Mountains, far to the north of Spanish Peaks. The line between Pueblo and Huerfano counties follows this range for a few miles, as does also the line between the latter county and Custer. Thence the range trends northward through Custer County. Greenhorn Mountain is the southern peak of this chain. The Spanish Peaks are two isolated mountains on the southern line of Huerfano County.— Ed.

quitos, the first we had met for some weeks in sufficient numbers to be troublesome.

July 20th. We left our encampment on the following morning at five, the weather warm and fair. [246] Soon afterwards we passed the mouth of a creek on the south side, which our guide informed us is called by the Spaniards Wharf creek, probably from the circumstance of its washing the base of numerous perpendicular precipices of moderate height, which is said to be the case. It is the stream designated in Pike's map as the Second Fork. A party of hunters in the employ of Choteau, who were taken prisoners by the Spaniards in the month of May, 1817, were conducted up this creek to the mountains, thence across the mountains to Santa Fé.³⁵

We observed this morning some traces of Indians, but none very recent. On the preceding day we had passed the site of a large encampment, where we saw several horse-pens well fenced.

Near the place where we halted to dine, a large herd of elk was seen; but unfortunately they "took the wind of us," and disappeared, giving us no opportunity to fire upon them.

Along the river bluffs we saw numerous conic mounds, resembling those of artificial formation so frequently met with near the Ohio and Mississippi rivers, but differing from them by their surface from the apex to the base being terminated by a strait or concave instead of a convex curve, which is usual in those of artificial origin. The

³⁵ The stream to which James dedicates this fanciful etymology is the Huerfano (Orphan) River of the Spanish. "Wharf" is apparently a corrupted contraction. Booneville is opposite the mouth of this stream. The river rises on the slopes of the Sangre de Cristo range, in Huerfano Park, and flows east and northeast through the county of the same name. For the arrest of Chouteau's hunters, see preceding volume, note 134.—ED.

natural mounds of which we speak appear usually to contain a nucleus of sandstone, which is sometimes laid bare at the summit or on the sides, and sometimes entirely concealed by the accumulated *débris* resting upon it, but often contains petrified remains of marine animals.

At the end of this day's ride of twenty-six miles, we found the river valley more than a mile in width, and the distant hills or bluffs which bound it low, and of gradual ascent. The boulders, pebbles, and gravel so abundant near the base of the mountain, had been growing gradually less frequent and diminishing in size, till they had now almost entirely disappeared, their place being supplied by a fine [247] sand intermixed with clay, which here composed the surface. The soil is still marked with a character of extreme barrenness, the islands and the immediate margin of the river bearing an inconsiderable growth of cotton-wood and willows, but the great mass of the country being almost destitute of vegetation of any kind. Hunters were sent out immediately on encamping, and returned at dark, bringing a wild cat, an old turkey, and five of her chickens.

A bird was taken, closely resembling in point of colouring a species preserved in the Philadelphia Museum, under the name of *ruby-crowned flycatcher*, said to be from the East Indies; but the bill differs in being much less dilated. We can hardly think it a new species, yet in the more common books we do not find any distinct description of it. It is certainly allied to the *tyrannus griseus* and *sulphuratus* of Vieillot; but in addition to other differential characters, it is distinguished from the former by its yellow belly, and from the latter by the simplicity of the colouring of the wing and tail feathers, and the absence of bands on the side of the head; the bill

also is differently formed from that of either of those species, if we may judge from Vieillot's figures.³⁶

Friday, July 21st. We left our encampment at five A. M., and having descended six or eight miles along the river, met an Indian and squaw, who were, as they informed us, of the tribe called Kaskaia; by the French, Bad-hearts. They were on horseback; and the squaw led a third horse of uncommon beauty. They were on their way from the Arkansa below to the mountains near the sources of the Platte, where their nation sometimes resides. They informed us that the greater part of six nations of Indians were encamped about nineteen days' journey below us, on the Arkansa. These were the Kaskaias, Shiennes, Arrapahoes, Kiawas, the Bald-heads, and a few Shoshones or Snakes. These nations, the Kaskaia [248] informed us, had been for some time embodied, and had been engaged in a warlike expedition against the Spaniards. They had recently met a party of Spaniards on Red river, when a battle was fought, in which the Spaniards were defeated with considerable loss.

We now understood the reason of a fact which had appeared a little remarkable; namely, that we should have traversed so great an extent of Indian country as we had done since leaving the Pawnees, without meeting

³⁶ *Tyrannus verticalis*, SAY.— *Head* above pure pale plumbeous; *vertex* with a bright orange spot; *back* pale plumbeous, very slightly tinged with olivaceous; *wings* brown; *tertials* margined exteriorly with white; inner webs of the primaries towards the base whitish, narrowed at their tips, the first feather remarkably so; *tail coverts* and *tail* deep brown black; exterior web of the lateral tail feather white; a dusky line before the eye; *chin* whitish; *neck* beneath, colour of the head; *breast*, *belly*, and *inferior tail coverts* bright yellow; *bill* furnished with clusters above, and each side at base; *superior mandible* perfectly rectilinear above, from the base to near the tip, where it rather suddenly curves much downward. Total length 8 inches; bill from the anterior edge of the nostrils to tip $\frac{1}{2}$ of an inch.— JAMES.

a single savage. The bands above enumerated are supposed to comprise nearly the whole erratic population of the country about the sources of the Platte and Arkansa; and they had all been absent from their usual haunts on a predatory excursion against the Indians of New Mexico.

At our request, the Kaskaia and his squaw returned with us several miles, to point out a place suitable for fording the Arkansa, and to give us any other information or assistance in their power to communicate. Being made to understand that it was the design of some of the party to visit the sources of Red river, he pretended to give us information and advice upon that subject; also to direct us to a place where we might find a mass of rock salt, which he described as existing on one of the upper branches of Red river.

At ten o'clock we arrived at the ford, where we halted to make a distribution of the baggage and other preparations requisite to the proposed division of the party. Our Kaskaia visitor, with his handsome and highly ornamented wife, encamped near us, erecting a little tent covered with skins. They presented us some jerked bison meat, and received in return some tobacco and other inconsiderable articles. A small looking-glass, which was among the presents given him, he immediately stripped of the frame and covering, and inserted it with some ingenuity into a large billet of wood, on which he [249] began to carve the figure of an alligator. Captain Bell bought of him the horse they had led with them; and which, according to their account, had recently been caught from among the wild horses of the prairie. This made some new arrangement of their baggage necessary; and we were surprised to witness the facility and despatch with which the squaw constructed a new pack-saddle.

She felled a small cotton-wood tree, from which she cut two large forked sticks. These were soon reduced to the proper dimensions, and adapted to the ends of two flat pieces of wood about two feet in length, and designed to fit accurately to the back of the horse, a longitudinal space of a few inches in width being left between them to receive the ridge of the back. The whole was fastened together without nails, pins, or mortices, by a strong covering of dressed horse hide sewed on wet with fibres of deer's sinew.

The Indian informed us he was called "The Calf." He appeared excessively fond of his squaw; and their caresses and endearments they were at no pains to conceal. It was conjectured by our guide, and afterwards ascertained by those who descended the Arkansa, that they had married contrary to the laws and usages of their tribe, the woman being already the wife of another man, and run away for concealment.

The small point of land on which we encamped has a sandy soil, and is thinly covered with cotton-wood, intermixed with the aspen poplar (*P. tremula*, Mx.) and a few willows. The undergrowth is scattered and small, consisting principally of the *amorpha fruticosa* and a syngeneious shrub, probably a *vernonia*. Along the base of the mountains, and about this encampment, we had observed a small *asclepias* not easily distinguished from a *verticillata*, but rarely rising more than two or three inches from the ground. Here, we saw also the *A. longifolia* and *A. viridifolia* of Punsh. The scanty [250] catalogue of grassy and herbaceous plants found here comprises two sunflowers, (*H. giganteus*, N. and an undescribed species,) the great *bartonica*, the Mexican *argemone*, the *cactus ferox*, the *andropogon furcatum*,

and *A. ciliatum*, *cyperus uncinatus*, *elymus striatus*, and a few others. Soon after arriving at this encampment, we commenced the separation of our baggage, horses, &c. preparatory to the division of the party. It was now proposed, pursuant to the plan already detailed, that one division of the party, consisting of Mr. Say, Mr. Seymour, Lieut. Swift, the three Frenchmen, Bijeau, Le Doux, and Julian, with five riflemen, the greater part of the pack-horses, the heavy baggage, and the two dogs, all under the direction of Captain Bell, should proceed directly down the Arkansa by the most direct route to Fort Smith, there to await the arrival of the other division; while Major Long, accompanied by Dr. James, Mr. Peale, and seven men, should cross the Arkansa, and travel southward in search of the sources of Red river.

While several of the party were engaged in making these preparations, hunters were sent out; who were so far successful, that they soon returned, bringing two deer, one antelope, and seven turkeys. The opportunity of an unoccupied moment was taken to collect from Bijeau an account of some part of the Rocky Mountains which we had not seen.

Joseph Bijeau, (or Bessonnet, which is his hereditary name, the former having been derived from a second marriage of his mother,) had performed, in a very adequate and faithful manner, the services of guide and interpreter from the Pawnee villages to this place. He had formerly been resident in these western wilds, in the capacity of hunter and trapper, during the greater part of six years.

He had traversed the country lying between the north fork of the Platte and the Arkansa in almost every direction. His pursuits often led him within the [251] Rocky Mountains, where the beaver are particularly abundant.

He appears possessed not only of considerable acuteness of observation, but of a degree of candour and veracity which gives credibility to his accounts and descriptions. To him we are indebted for the following account of the country situated within the mountains.

The region lying west of the first range of the Rocky Mountains, and between the sources of the Yellow Stone on the north, and Santa Fé on the south, is made up of ridges of mountains, spurs and valleys. The mountains are usually abrupt, often towering into inaccessible peaks covered with perpetual snows. The interior ranges and spurs are generally more elevated than the exterior; this conclusion is at least naturally drawn from the fact, that they are covered with snow to a greater extent below their summits. Although that point which we have denominated James's Peak has been represented as higher than any other part of the mountains within one hundred or one hundred and fifty miles, we are inclined to believe it falls much below several other peaks, and particularly that which was for many days observed by the party when ascending the Platte.³⁷

The valleys within the Rocky Mountains are, many of them, extensive, being from ten to twenty or thirty miles in width, and are traversed by many large and beautiful streams. In these valleys, which are destitute of timber, the soil is frequently fertile and covered with a rich growth of a white-flowered clover, upon which horses and other animals feed with avidity. They have an undulating surface, and are terminated on all sides by gentle slopes leading up to the base of the circumjacent mountains. Timber may be had on the declivities of the hills in

³⁷ There are no fewer than fifteen peaks within the state of Colorado which exceed Pike's Peak in altitude.—ED.

sufficient quantity to subserve the purposes of settlement. The soil is deep, well watered, and adapted to cultivation.

[252] The Indians who inhabit within the mountains are roving bands, having no permanent places of residence, and subsisting entirely upon the products of the chase. The people called Padoucas have been often represented as residing in the district now under consideration; but are not at this time to be found here, unless this name be synonymous with that of the Bald-heads, or some other of the six nations already enumerated.

On the morning of the 22d, one of two hunters who had been sent out on the preceding day, but had not returned, came into camp to give notice that a bison had been killed at the distance of eight miles on the other side of the river; men were accordingly despatched with pack-horses to bring in the meat. Astronomical observations were resumed; and all the party were busily employed in the discharge of their ordinary duties, or in preparations for the approaching separation.³⁸ A vocabulary of the Kaskaia language was filled up with words obtained from the Calf, who still remained with us.

The New York bat (*vespertilio noveboracensis*) which occurs here, does not vary in any degree from the general characters and appearance of individuals of the Atlantic States. The specimen we obtained is most unequivocally furnished with incisores in the superior jaw, which by Pennant³⁹ were denied to exist in the species of this name. These teeth being small, and hardly rising to a level with

³⁸ The results of several sets of observations gave us the position of this encampment, $38^{\circ} 12' 22''$ north latitude, and $103^{\circ} 46' 15''$ west longitude from Greenwich, or $26^{\circ} 46' 15''$ from Washington.— JAMES.

³⁹ Thomas Pennant (1726-98) was the author of *British Zoölogy* (London, 1766), *History of Quadrupeds* (1781), and other works on natural science. Those mentioned were held in high estimation, and passed through several editions.— ED.

a line of the intervening callosity, might be readily overlooked by a casual observer, who does not aid his vision by the use of the lens. In adducing this fact, it must not be understood that we affirm the existence of those teeth in individuals of this species generally; we only refer to the single specimen before us.

[253] A small bat was shot this evening during the twilight, as it flew rapidly in various directions over the surface of the creek. It appears to be an immature specimen, as the molares are remarkably long and acute: the canines are very much incurved, and the right inferior one singularly bifid at tip, the divisions resembling short bristles. This species is beyond a doubt distinct from the Carolina bat, (*V. Caroliniana*, Geoff.) with which the ears are proportionably equally elongated, and, as in that bat, a little ventricose on the anterior edge, so as almost to extend over the eye; but the tragus is much longer, narrower, and more acute, resembling that of the *V. emarginatus*, Geoff. as well in form as in proportion to the length of the ear. We call it *V. subulatus*, Say; and it may be thus described,—ears longer than broad, nearly as long as the head; hairy on the basal half; a little ventricose on the anterior edge, and extending near to the eye; tragus elongated, subulate; the hair above blackish at base, tip dull cinereous; the interfemoral membrane hairy at base; the hairs unicoloured, and a few also scattered over its surface and along its edge, as well as that of the brachial membrane; hair beneath black, the tip yellowish-white; hind-feet rather long, a few setæ extending over the nails; only a minute portion of the tail protrudes beyond the membrane; total length, two inches and one-tenth; tail, one and one-fifth.

This encampment was situated about eighteen miles

above the confluence of that tributary of the Arkansa called, in Pike's map, "The First Fork;" and by our computation near one hundred miles from the base of the mountain.⁴⁰ James's Peak was still visible, bearing north, 68° west; and the Spanish peaks, the westernmost of which bore south, 40° west. The observations made here received the most minute and careful attention. The moon was at this time too near the sun to admit of taking her distance from that luminary, and too near Antares [254] for an observation. The distance of Spica Virginus was too great, and the star was too near the horizon; yet we trust accurate deductions may be made from the distances which are given in the Appendix.⁴¹

On the evening of both days which our Kaskaia spent with us, we observed him to commence soon after sunset a monotonous and somewhat melancholy song, which he continued for near an hour. He gave us some account of a battle which had lately been fought between the Tabbaboos (Anglo-Americans) and the Spaniards, in which great guns had been used, and when the Spaniards, though superior in number, had been beaten. He appeared well acquainted with the use of fire-arms, and challenged one of the party to a trial of skill in shooting at a mark with the rifle. He had a fusee, kept very carefully in a case of leather, and carried, when travelling, by his squaw. He was also armed with a bow and some

⁴⁰ Pike's "First Fork" is Purgatory River, as given on the map (see *post*, note 47). Eighteen miles above the mouth of the Purgatory would fix the camp of July 21-23 near Timpas Creek, which flows northeast through Las Animas and Otero counties to the Arkansas, near the present town of La Junta. The camp was, however, probably several miles farther up the Arkansas, as the party had that morning passed the Huerfano, about sixty miles above the Purgatory, and had travelled twenty-six miles during the day.—ED.

⁴¹ See volume xvii.—ED.

light arrows for hunting, which he carried constantly in his hand. He took his leave of us on the morning of the 23d, having received several presents, with which he appeared highly pleased.

The Arkansa, between this point and the mountains, has a rapid current, whose velocity probably varies from five to six miles per hour. It may be forded at many places in a moderate stage of water. The average breadth of the river is from sixty to seventy-five yards; at many places, however, it is much enlarged, including numerous islands. It pursues a remarkably serpentine course within its valley, forming a succession of points on both sides of the river; which, together with the islands, are usually covered with cotton-wood. The bed of the river is gravelly, or composed of waterworn stones, which diminish in size as you recede from the mountains. The water is turbid, but in a less remarkable degree than that of the Platte. The bed of the river has, in many instances, changed its place; and the old [255] channel is sometimes occupied by stagnant water, and sometimes by a small stream, which is rendered transparent by passing through the sand and gravel, forming the recently-raised bank of the river.

On the 24th the movements of the party were resumed. Major Long, with the division destined to Red river, crossed the Arkansa at five A. M. On arriving at the opposite bank three cheers were given, which our late companions returned from the other side. We lost sight of them as they were leaving the camp to descend the Arkansa.

The party, consisting of ten men, took with them six horses and eight mules, most of them in good condition for travelling. A few had sore backs, but one horse only was unfit for service.

Our course was a little to the east of south, nearly at right angles to the direction of the Arkansa. It was our intention to cross to and ascend the First Fork, a considerable stream, entering the Arkansa eighteen miles below our last encampment. After leaving the river we found the surface to rise gradually till, at the distance of six or eight miles, it is broken by a few small gravelly ridges. These are of little elevation; and their summits overlook an extensive waste of sand, terminated towards the south and east only by the verge of the sky, on the west and north-west by the snowy summits of the Spanish mountains. As our way led across the general course of the stream, we met with no water, except such as was still standing in puddles, which had been filled by the last night's rain. Near one of these we halted to dine. The thermometer, hanging in the shade of our tent, the most perfect, and indeed the only shade we could find, stood at 100°. The little water we could procure was thick with mud, and swarming with the larva of mosquitos; but this we regretted the less, as we had no cooking to perform. We dined upon jerked meat from our packs. Some animals, seen at a distance, [256] were at first mistaken for bisons; but were found, by the hunters sent in pursuit of them, to be horses, and too wild and vigilant to be taken.

A species of cone-flower (*rudbeckia tagetes*)⁴² with an

⁴² R. *Tagetes*, JAMES.—Hirsute stem much branched, somewhat grooved; radical leaves subentive, spatulate, linear, or pinnatifid; cauline leaves interruptedly pinnatifid; the divisions irregular in form and position, but usually linear branches alternate or scattered; peduncles grooved short, few-flowered terminal; ray florets [$\frac{5}{8}$] recurved red brown; disk dark brown, receptacle columnar, but proportionably much shorter than that of *R. columnaris*, to which species the one under consideration is allied. Plant about twelve inches high, growing in clusters, and having, by its numerous branches and finely divided leaves, a remote resemblance to *anthemis cotula*.—JAMES.

elongated receptacle, and large red brown radial florets, was observed about the margin of the stagnant pool near which we halted.

We also collected the *linum rigidum*, and a semi-procumbent species of *sida*, which appears to be undescribed. It is a little larger than the *S. spinosa*, to which it has some general resemblance.

The whole tract passed in this day's journey of twenty-seven miles, is sterile and sandy. At sunset we were so fortunate as to meet with another small pool of water, by which we pitched our tent, and kindled a fire with the dung of the bison. Since leaving the Arkansa, we had scarcely seen so much wood as, if collected, would have supplied us for a single night.

We passed, in the course of the day, not less than four or five paths, leading south-west, towards the Spanish settlements. Some of them appeared to have been recently travelled by men with horses, such paths being easily distinguished from those of bisons or wild horses.⁴³

Our camp was near the head of a dry ravine, communicating to the south-east, with a considerable stream, which we could distinguish at the distance of eight or ten miles, by a few trees along its course.⁴⁴ Continuing our journey on the ensuing day, July 25th, we soon found ourselves in a tract of country resembling that on the Arkansa near the mountains. A similar horizontal slaty sandstone occurs, forming the basis of the country. There

⁴³ This is a part of the Santa Fé trail. The trail forked at Bent's Fort, between the Purgatory and Timpas Creek, one branch ascending the Arkansas to the Huerfano, which it followed to the base of the mountains, thence running south to a pass opposite Taos, in New Mexico, some distance north of Santa Fé; the other ran southwest between Purgatory River and Timpas Creek, through the Raton Mountains of southern Colorado. For the trail east and north of Bent's Fort, and its early history, see *post*, note 108.—ED.

⁴⁴ This was the Purgatory, which they reached the day after.—ED.

is also here a coarse, somewhat crystalline, variety, resembling that of St. Michael's in the lead mine district, but exhibiting no trace of metallic ores. These rocks are deeply channeled by the watercourses, sunk to a great depth, but at this time containing but little, if any, [257] water. These ravines are, the greater number of them, destitute of timber, except a few cedars, attached here and there in the crevices of the rock. The larger valleys, which contain streams of water, have a few cotton-wood and willow trees. The box elder, the common elder, (*sambucus canadensis*,) and one or two species of *bibirium* are seen here.

It was perhaps owing to our having followed more carefully than they deserved, the directions of the Calf, that we did not arrive as early as we had expected, upon the stream we designed to ascend. In the middle of the day on the 25th, we fell in with a small river, at the distance of thirty-six miles from the point where we had left the Arkansa. This we concluded could be no other than that tributary, whose mouth is said to be distant eighteen miles from the same spot. This stream, where we halted upon it to dine, is about ten yards wide and three feet deep, but appeared at this time unusually swollen. Its immediate valley is about three hundred yards in width, bounded on both sides by perpendicular cliffs of sandstone, of near two hundred feet elevation. A very large part of the area included between these, showed convincing evidence, in the slime and rubbish with which its surface was covered, of having been recently inundated. This stream, like all others of similar magnitude, having their sources in high mountains, is subject to great and sudden floods. A short time before we halted, our two hunters, Verplank and

Dougherty, were sent forward to hunt, and joined us with a deer soon after we had encamped.

After dinner we moved on, ascending the creek above mentioned, whose valley was sufficiently wide for a little distance, to afford us an easy and unobstructed passage. The stream runs nearly from south to north, in a deep, but narrow and tortuous valley, terminated on both sides by lofty and perpendicular precipices of red sand rock. This sandstone [258] appears entirely to resemble that before mentioned, as occurring in an inclined position along the base of the mountains, on the Arkansa and Boiling-spring creek. Here it is disposed in horizontal strata of immense thickness; it varies in colour, from a bright brick red to a dark, and is sometimes grey, yellow, or white. It consists essentially of rounded particles of quartz and other siliceous stones, varying in size from the finest sand to gravel stones and large pebbles. Extensive beds of pudding-stone occur in every part of it, but are abundant somewhat in proportion to the proximity of the high primitive mountains. In the lower parts of the stratum these beds of coarse conglomerate appear to have the constituent gravel and pebble-stones more loosely cemented than in portions nearer to the upper surface; wherever we have met with them in immediate contact with the granite of the Rocky Mountains, they are nearly destitute of cement, and of a colour approaching to white. This remark, it is highly probable, may not be applicable to many extensive beds of pudding-stone which lie near the base of the mountains. In the instances which came under our notice, the absence of colour and the want of cement may very probably have been accidental. The finer varieties of the sandstone are often met with in the

immediate neighbourhood of the granite, and are of a compact structure, and an intense colour. Red is the prevailing colour in every part of the stratum, but stripes of yellow, grey, and white, are frequently interspersed. In hardness and other sensible properties, it varies widely at different points. In many instances it is entirely similar to the sandstone about New Brunswick, in New Jersey, at Nyac, and along the Tappan bay, in New York, and particularly that variety of it which is quarried at Nyac, and extensively used in the cities of New York and Albany for building. It contains a little mica in small scales; oxyde of iron predominates in the cement, and the ore denominated [259] the brown oxyde, occurs in it in seniform botryoidar and irregular masses.

A few miles above our mid-day encampment, we entered the valley of a small creek, tributary from the south-east to the stream we had been ascending; but this we found so narrow and so obstructed by fallen masses of rock, and almost impenetrable thickets of alders and willows, as to render our progress extremely tedious and painful. We were several times induced to attempt passing along the bed of the stream, but as the mud was in many places very deep, this was done at the cost of the most violent and fatiguing exertions on the part of our horses, and the risk to ourselves of being thrown with our baggage into the stream. With the hope of finding an easier route across the hills, we ascended with much difficulty a craggy and abrupt ravine, until we had attained nearly the elevation of the precipitous ramparts which hemmed in the narrow valley of the creek; but all we gained by this ascent was the opportunity of looking down upon a few of our companions still lingering below, diminished to the stature of dwarfs by the distance, and by contrast with the rude and

colossal features of the scene. The surface of the country extending on both sides from the summit of the precipices, consisted of abrupt conic piles, narrow ridges, and shapeless fragments of naked rocks, more impassable than the valley below. Counsell'd therefore by necessity, we resumed our former course, ascending along the bed of the creek.⁴⁵

Among other birds which occurred in this day's march, we noticed the yellow-bellied fly catcher and the obscure wren.

One of the small striped ground-squirrels already noticed was killed, and an individual belonging to another species,⁴⁶ distinguished by the extraordinary coarseness and flattened form of the fur, and by three black lines on each side of the tail; these [260] lines at their tips are of course united over the surface of the tail as in the Barbary squirrel. It nestles in holds and crevices of the rocks, and does not appear to ascend trees voluntarily.

It appears to inhabit principally about the naked parts of the sandstone cliffs, or where there are only a few cedar bushes. In the pouch of the specimens killed, we found

⁴⁵ Since Long's party pursued a course slightly east of south for thirty-six miles, they must have reached the Purgatory near the northern boundary of Las Animas County. Chaquaqua Creek, just above the town of Bent Cañon, is probably the one followed when the party left the main stream.—ED.

⁴⁶ Genus *Sciurus*. S. *Grammurus*, SAY.—Line-tailed squirrel. Body cinereous, more or less tinged with ferruginous; fur very coarse, much flattened, canaliculate above, plumbeous or blackish at base, then whitish or ferruginous, tip brownish; above the neck and shoulders the whitish is prevalent; from the middle of the back, the sides and the exterior surface of the legs, the ferruginous colour prevails, the terminal brown of the fur being obsolete; superior and inferior orbits of the eye white; tail moderate, whitish, fur triannulate with black, the base and tip of each hair being whitish, beneath whitish tinged with ferruginous; thumb tubercle armed; iris burnt umber; pupil black.

Length to the origin of the tail,	11½ inches.
of the tail,	9

— JAMES.

the buds and leaves of a few small plants, common among the rocks.

Following up the bed of the creek, we ascended by a gradual elevation to the surface of the stratum of red sandstone. It is separated by a somewhat distinct boundary from the finer and more compact grey variety which rests upon it. This grey sandstone appears from the organic relics it contains, as well as from its relative position, to have been of more recent deposition than the red. Its prevailing colours are grey or yellowish white; its stratifications distinct; and its cement often argillaceous.

After entering upon this variety, we found the valley of the creek less circuitous in direction, but narrower and more obstructed by detached fragments than below. The impaling cliffs on each side were also more uniformly perpendicular, putting it out of our power to choose any other path than the rugged one before us. As with every step of our advance upon this route, we were gaining a little in point of elevation, we hoped by following it to reach at length its termination in the high and open plain, which we had no doubt existed, extending over the greater part of the surface of the country, wherever the strata of sandstone were still unbroken. At five P. M., supposing we had arrived very near this much-wished-for spot, and finding an indifferent supply of grass for our horses, we halted for the night, having travelled fifteen miles.

July 26th. The water of the large stream we had crossed, and ascended for some distance on the preceding [261] day, was turbid, and so brackish as to be nauseous to the taste. The same was observed, though in a less remarkable degree, of the little tributary we had followed up to our encampment. After leaving the region of red sandstone, we found the water to become perceptibly

purser. In the districts occupied by that rock, we have observed several copious springs, but not one whose waters were without a very manifest impregnation of muriate of soda, or other saline substances. In the gray or argillaceous sandstone springs are less frequent, but the water is not so universally impure.

A beautiful dalea, two or three euphorbias, with several species of eriogonum, were among the plants collected about this encampment. Notwithstanding the barrenness of the soil and the aspect of desolation which so widely prevails, we are often surprised by the occurrence of splendid and interesting productions springing up under our feet, in situations that seemed to promise nothing but the most cheerless and unvaried sterility. Operating with unbounded energy in every situation, adapting itself with wonderful versatility to all combinations of circumstances; the principle of life extends its dominion over those portions of nature which seem as if designed for the perpetual abode of inorganic desolation, distributing some of its choicest gifts to the most ungenial regions; fitting them by peculiarity of structure, for the maintenance of life and vigour, in situations apparently the most unfavoured.

At nine o'clock in the evening of the 25th, a fall of rain commenced; we were now ten in company, with a single tent, large enough to cover half the number. In order, however, to make the most equal distribution of our several comforts, it was so arranged that about the half of each man was sheltered under the tent, while the remainder was exposed to the weather. This was effected by placing all our heads near together in the centre of the tent, and [262] allowing our feet to project in all directions, like the radii of a circle.

On the ensuing morning we commenced our ride at an early hour, being encouraged still to pursue the course up the ravine, by a bison path, which we believed would at length conduct us to the open plain. Our progress was slow and laborious, and our narrow path so hemmed in with perpendicular cliffs of sandstone, that our views were nearly as confined, and the surrounding objects as unvaried as if we had been making our way in a subterranean passage. Two black-tailed deer, with a few squirrels, and some small birds, were all the animals seen in the course of the day. Some enormous tracks of the grizzly bear, with the recent signs of bisons, afforded sufficient proof that these animals, though unseen, were near at hand.

Our courses were nearly south during the day, and the distance we travelled, estimated on them, fifteen miles. The actual distance passed must have been much greater, as our real course was extremely circuitous, winding from right to left in conformity to the sinuosities of the valley.

At 4 o'clock we arrived at the head of the stream which we had hitherto ascended; as we were conscious that after leaving this, and emerging into the open country, we could not expect to meet with water again in a distance of several miles, it was resolved to halt here for the night, and the hunters were sent out. Soon afterwards it began to rain. At sun-set the hunters returned, having killed a female of the black-tailed or mule deer. The flesh of this we found in tolerable condition, and extremely grateful to our hungry party.

On the morning of the 27th, we rose at 3 o'clock, and hastened our preparations for an early start. The morning was clear and calm, and the copious dew which was

beginning to exhale from the scanty herbage of the valley, gave to the air a delightful [263] freshness. The mercury, as on several of the preceding mornings, stood at about 55°. At sun-rise we resumed our toilsome march, and before 10 o'clock, had arrived at a part of the valley beyond which it was found impossible to penetrate. The distance we had travelled would have been, in a direct line, about three miles; in passing it we had followed no less than ten different courses, running in all possible directions. This fatiguing march had brought us to a point where the valley was so narrow, and so obstructed with large detached rocks, as to be entirely impassable on horseback. We were therefore under the necessity of halting, and as the place afforded some grass, our horses were turned loose to feed, while several persons were sent to discover, if possible, some passage by which we might extricate ourselves from the ravine. One of them at length returned, having found at the distance of a mile and a half below, a pass where it was thought our horses could be led up the cliff.

On the preceding day we had commenced our accustomed march in a valley bounded by perpendicular cliffs of red sandstone, having an elevation of at least two hundred feet. As we ascended gradually along the bed of the stream, we could perceive we were arriving near the surface of this vast horizontal bed of sandrock, and at night we pitched our tent at the very point where the red sandstone began to be overlaid in the bed of the creek by a different variety. This second variety, the gray sandstone, is a horizontal stratum, evidently of more than two hundred feet in thickness. It is usually more compact and imperishable than the red, its fragments remaining longer entire, and retaining the angles and asperities of the

surface, which in the other variety are soon softened down by the rapid progress of disintegration.

It is easy to perceive that the sandstone formation, including the two varieties above mentioned, [264] must be at this point of immense thickness. Fifteen hundred feet is probably a very moderate estimate for the aggregate elevation of some insulated, but extensive portions of the gray sandstone, above that part of the valley at which the red sandstone first appears. From this point downwards, the extent of the latter variety may be very great, but no estimate can be formed which would be in any measure entitled to confidence.

After we had dined we retraced our two last courses, and succeeded in ascending the cliff at the place which one of the hunters had pointed out, taking, without the least regret, our final leave of the "valley of the souls in purgatory."⁴⁷

From the brow of the perpendicular precipice, an ascending slope of a few rods conducted us through scattering groves of junipers, to the border of the open plain. Here the interminable expanse of the grassy desert burst suddenly upon our view. The change was truly grateful. Instead of a narrow crooked avenue, hedged in by impending cliffs and frightful precipices, a boundless and varied landscape lay spread before us. The broad valley of the

⁴⁷ This tributary of the Arkansa, designated on the old maps as the "First Fork," is known among the Spaniards of New Mexico, as the river of the souls in purgatory. We emerged from the gloomy solitude of its valley, with a feeling somewhat akin to that which attends escape from a place of punishment.— JAMES.

Comment by Ed. The Philadelphia edition adds, after the words "First Fork," "as we learned from Bijeau." The Spaniards had two names for the river — Rio Purgatorio and Rio de Las Animas. The French equivalent of the former was Rivière Purgatoire, which appears sometimes in English in corrupted form, Picket-wire. The stream is of considerable size, heading on the slopes of the Culebra Range, near the state boundary, and flowing north-east across Las Animas, and corners of Otero and Bent counties.

Arkansa, studded with little groves of timber, and terminated in the back ground by the shining summit of James's Peak, and numerous spurs of the Rocky Mountains, with the snowy pinnacles of the more distant ranges, limited our view on the right; on our left, and before us, lay the extended plain, diversified with vast conic mounds, and insulated table-like hills, while herds of bisons, antelopes, and wild horses, gave life and cheerfulness to the scene.

A large undescribed species of the gaura is common [265] about the banks of all the creeks we had seen since leaving the Arkansa. It attains, ordinarily, the size of *G. biennis*, but is clearly distinct both from that and all other North American species. It has a broader leaf than any other of the genus met with in this country. The flowers are small, of a purple colour, and incline to form a terminal spike. The whole plant is covered with a dense silky pubescence, and is remarkably soft to the touch. We propose to call it *gaura mollis*.

After travelling one mile and a half into the plain in a due south course, we halted to take the bearings of several remarkable points. Due east was a solitary and almost naked pile of rocks towering to a great elevation above the surface of the plain. James's Peak bore north 71° west; the west Spanish Peak, south 87° . West magnetic variation, $13\frac{1}{2}$ deg. east. As we proceeded, we were surprised to witness an aspect of unwonted verdure and freshness in the grasses and other plants of the plains, and in searching for the cause of this change, we discovered we had arrived at a region differing both in point of soil and geological features from any portion of the country we had before seen. Several circumstances had induced us to conjecture that rocks of the newest fletz trap formation,

existed in some portions of the secondary region along the eastern declivity of the Rocky Mountains; but until this time we had met with no positive confirmation of the opinion. We are glad to be at length relieved from the tiresome sameness of the sand formation, and promised ourselves in the treasures of a new and more fertile variety of soil, the acquisition of many important plants.

At five P. M. we met with a little stagnant water, near which we encamped, having travelled about ten miles nearly due south from the point where we had left the valley of the creek. The hunters went out on foot in pursuit of bisons, several herds being [266] in sight; but returned at dark, having effected no more than to break the shoulder of a young bull, who ran off, pursued by a gang of wolves. Several of the party understanding the route the animal had taken, and instigated in common with the wolves by the powerful incitement of hunger, resolved to join the chase, and to dispute with their canine competitors the possession of the prey. When they had nearly overtaken the bison, they saw him several times thrown to the ground by the wolves, and afterwards regaining his feet. They soon came near enough to do execution with their pistols, and frightened away the wolves only to make a speedier end of the harrassed animal. It was now past nine o'clock, but the starlight was sufficient to enable them to dress the meat, with which they returned loaded to camp, and spent the greater part of the night in regaling on the choice pieces.

Friday, July 28th. From an elevated point, about eight miles south of our encampment of last evening, the high peak at the head of the Arkansa was still visible when we passed this morning. From a computation of our courses and distances we find we cannot, according to

our estimate, be less than one hundred and thirty miles distant from its base; but the air at this time happened to be remarkably clear, and our elevation above the common level of the plain considerable. By referring to Pike's "Journal of a Voyage to the Sources of the Arkansa," it will be seen that this peak is the most prominent and conspicuous feature in a great extent of the surrounding country. "It is indeed so remarkable as to be known to all the savage nations for hundreds of miles around, and to be spoken of with admiration by the Spaniards of New Mexico, and was the bounds of their travels north-west. Indeed, in our wanderings in the mountains, it was never out of sight, except when in a valley, from the 14th of November to the 27th of January."⁴⁸

[267] Notwithstanding this representation, and the fact that the peak in question was seen by ourselves at the distance of one hundred and thirty miles, we are inclined to the opinion, that in point of elevation, it falls far below many portions of the interior ridges of the mountains which are visible from its summit, and from the plains of the Platte, and that it is by standing a little detached from the principal group of the mountains, it acquires a great portion of the imposing grandeur of its appearance.

In the forenoon of this day we passed some tracts of grey sandstone; having, however, met with several inconsiderable conic hills belonging to that interesting formation, called by the disciples of Werner,⁴⁹ the fletz trap rocks. We perceived before us a striking change in aspect and conformation of the surface. Instead of the wearisome

⁴⁸ See p. 171 [p. 260 of our volume xv].—JAMES.

⁴⁹ Abraham Gottlob Werner (1749-1817), for forty years an instructor in the Mining Academy of Freiberg, Saxony, was perhaps the most renowned geologist and mineralogist of his time; but his system of classification long since proved defective in the light of wider research.—ED.

uniformity, the low and pointless ridges which mark the long tract of horizontal sandstone we had passed, we had now the prospect of a country varied by numerous continued ranges of lofty hills, interspersed with insulated cone-like piles, and irregular masses of every variety of magnitude and position. This scenery is not to be compared in point of grandeur with the naked and towering majesty of the great chain of the Andes, which we had lately left, but in its kind it is of uncommon beauty. The hills, though often abrupt and high, are sometimes smooth and grassy to their summits, having a surface, unbroken by a single rock or tree, large enough to be seen at the distance of a mile.

At noon we halted near the base of a hill of this description. It is of green stone, and the sandrock on which it rests is disclosed at the bottom of a ravine which commences near the foot of the hill. This latter rock is of a slaty structure, and embraces narrow beds of bituminous clay slate, which contains pieces of charcoal, or the carbonised remains of vegetables, in every possible respect resembling the charcoal [268] produced by the process of combustion in the open air. In the ravines and over the surface of the soil we observed masses of a light porous reddish-brown substance, greatly resembling that which is so often seen floating down the Missouri, and has by some been considered a product of pseudo-volcanic fires, said to exist on the upper branches of that river.⁵⁰ We also saw some porphyritic masses with a basis of greenstone, containing crystals of felspar.

In the afternoon several magpies, shore larks, and cow buntings were seen. One of the cow buntings followed

⁵⁰ See Bradbury's *Travels*, p. 161. second edition.—JAMES.
Comment by Ed. See p. 165 of the reprint, in our volume v.

us five or six miles, alighting on the ground, near the foremost of our line, and within a few paces of our horses' feet, where he stood gazing at the horses until all had passed him, when he again flew forward to the front, repeating the same movement many times in succession.

We had now arrived near that part of the country, where, according to the information of the Kaskaia, we expected to find the remarkable saline spring from which we were told the Indians often procured large masses of salt. The Kaskaia had, by the aid of a map traced in the sand, given us a minute account of the situation of the spring and of the surrounding country, stating that the salt existed in masses at the bottom of a basin-like cavity, which contained about four and a half feet of reddish water. Thus far we had not found a single feature of the country to correspond in the slightest degree to his descriptions, and as we had been careful to follow the general direction of the course he pointed out to us, it was probably his intention to deceive.

Our course, which was a little east of south, led us across several extensive valleys, having a thin dark coloured soil, closely covered with grasses, and strewed with fragments of greenstone. Descending towards evening into a broad and deep valley, we [269] found ourselves again immured between walls of grey sandstone, similar in elevation and all other particulars to those which limit the valley of Purgatory Creek. It was not until considerable search had been made, that we discovered a place where it was possible to effect the descent, which was at length accomplished, not without danger to the life and limbs of ourselves and horses. The area of the valley was covered with a sandy soil. Here we again saw the great cylindric cactus, the cucumis, and other plants common

to the sandy districts, but rarely found in the scanty soils of the fletz trap formation. Pursuing our way along this valley, we arrived towards evening at an inconsiderable stream⁵¹ of transparent and nearly pure water, descending along a narrow channel paved with black and shapeless masses of amygdaloidal and imperfectly porphyritic greenstone. This was the first stream we had for a long time seen traversing rocks of the secondary formation, whose waters were free of an impregnation of muriate of soda and other salts. From the very considerable magnitude of the valley, and the quantity of water in the creek, it is reasonable to infer that its sources were distant at least twenty miles to the west, and the purity and transparency of its waters afford sufficient evidence that it flows principally from a surface of trap rocks.

Having crossed the creek with some difficulty, we halted on its bank to set up our tent, and prepare ourselves for a thunder shower, which was already commencing. After the rain, the sky became clear, and the sun, which was near setting, gilded with its radiance the dripping foliage of a cluster of oaks and poplars, which stood near our tent. The grassy plain, acquiring an unwonted verdure from the shower, and gemmed with the reflection of innumerable pendant rain-drops, disclosed here and there a conic pile, or a solitary fragment of black and porous

⁵¹ From a subsequent comparison of the direction of several water courses which descend from this elevated district, we have been induced to consider the creek mentioned in the text as one of the most remote sources of the great northern tributary of the Canadian river.— JAMES.

Comment by Ed. This stream was more probably the Cimarron, which heads near the source of the Canadian, in the Raton Mountains, which form the watershed between these two rivers and the Purgatory. The Cimarron flows eastward just south of the Colorado line. The upper waters of the North Fork of Canadian are also in northeastern New Mexico, south of the Cimarron, but it is a smaller stream, and heads farther east. On Cimarron River, see Nuttall's *Journal*, in our volume xiii, note 203.

amygdaloid. The thinly-wooded banks of the creek [270] resounded to the loud notes of the robin, and the more varied and melodious song of the mocking-bird; the stern features of nature, which we had long contemplated with a feeling almost of terror, seemed to relax into a momentary smile to cheer us on our toilsome journey.

On the morning of the 29th, our course (S. 35° E.) brought us at the distance of three miles from our camp, to the foot of the cliff which separates the valley from the high plain. This mural barrier has an elevation of about two hundred feet, and is impassable, except at particular points, where it is broken by ravines. One of these we were fortunate in finding, without being compelled to deviate greatly from our course, and climbing its rugged declivity, we emerged upon the broad expanse of the high plain. Turning with a sort of involuntary motion towards the west, we again caught a view of the distant summits of the Andes appearing on the verge of our horizon. The scene before us was beautifully varied with smooth valleys, high conic hills, and irregular knobs, scattered in every direction as far as the eye could comprehend. Among these singular eminences nothing could be perceived like a continuous unbroken range. Most of them stand entirely isolated; others in groups and ranges, but all are distinct hills, with unconnected bases. The surface of the country generally, and more especially in the immediate vicinity of these hills, is strewed with fragments of compact or porphyritic greenstone. These are, in some places, accumulated in such quantities as render the passing extremely difficult.

At half-past eleven, A. M., a violent storm, with high and cold wind, came on from the north-east, and continued for two hours. Soon after its commencement we halted

to dine, but were unable to find a spot affording wood until so much rain had fallen as to wet our clothing and baggage. Fire was almost the only comfort we could now command, our [271] provisions being so nearly exhausted, that about an ounce of jerked bison meat was all that could be allowed each man for his dinner.

The rain ceasing, we again resumed our journey, but had not proceeded far when we were overtaken by a second storm from the north-east, still more violent than the first, and attended with such pelting hail that our horses refused to proceed in any direction except that of the wind, so that rather than suffer ourselves to be carried off our course, we were compelled to halt, and sit patiently upon our horses; opposing our backs to the storm, we waited for its violence to abate. As soon as the hail ceased we moved on, the water pouring in streams from our mock-asins and every part of our dress. The rain continued until dark, when, being unable to find wood, and having no occasion for water, we halted, and without the delay of cooking supper, or eating it, we set up our tent, and piled ourselves together under it in the most social manner possible. During the day the mercury had fallen from 70° to 47°, indicating a change of temperature, which was the more severely felt, as we were hungry, wet, and much fatigued. As we had neither dry clothing or blankets, we could find no other method of restoring the warmth to our benumbed bodies than by placing them together in the least possible compass. We spent a cheerless night, in the course of which Mr. Peale experienced an alarming attack of a spasmodic affection of the stomach, induced probably by cold and inanition. He was somewhat relieved by the free use of opium and whiskey.

30th. We left our comfortless camp at an early hour

on the ensuing morning, and traversing a wide plain strewn with fragments of greenstone, amygdaloid, and the vesicular substance already mentioned as the pumice-stone of Bradbury, we arrived in the middle of the day in the sight of a creek, which, like all the watercourses of this region, [272] is situated at the bottom of a deep and almost inaccessible valley. With the customary difficulty and danger, we at length found our way down to the stream, and encamped.

We were much concerned, but by no means surprised, to discover that our horses were rapidly failing under the severe services they were now made to perform. We had been often compelled to encamp without a sufficiency of grass, and the rocky travelling, to which we had for some time accustomed them, was wearing out and destroying their hoofs. Several were becoming lame, and all much exhausted and weakened.

Verplank, our faithful and indefatigable hunter, was so fortunate as to kill a black-tailed deer at a distance from our course. A horse was, however, sent for the remainder of the meat, Verplank having brought the greater part of it on his shoulders; and we once more enjoyed the luxury of a full meal.

In the course of the day we saw several antelopes, all more wild and shy than those between the Pawnee villages and the Missouri. Also a few wild horses, but it was easy to see that all the animals inhabiting this portion of the country had been accustomed to be hunted. Few traces of bison, either old or recent, were to be seen. From these facts we inferred that we were now on the frontiers of some permanent settlement, either of Spaniards or Indians.

[273] CHAPTER IV [XI]

Sufferings of the Party from Stormy Weather and Want of Provisions — Indications of an Approach towards Settlements — Inscribed Rock — Cervus Macrootis — Volcanic Origin of Amygdaloid.

THE valley in which we halted, is narrow and bounded on both sides by cliffs of greenstone, having manifestly a tendency to columnar or polyhedral structure. It falls readily into large prismatic masses, but obstinately resists that further progress of disintegration which must take place before it can be removed by the water. For this reason the valley is much obstructed by fallen masses retaining their angular form, and little intermixed with soil. The common choke cherry, and the yellow and black currants, are almost the only woody plants met with in this valley.

The stream which may be supposed to exist in it for a part of the year at least, but which was now dry, runs towards the south-east. Having arrived at that part of the country which has by common consent been represented to contain the sources of the Red river of Louisiana, we were induced, by the general inclination of the surface of the country and the direction of this creek, to consider it as one of those sources; and accordingly resolved to descend along its course, hoping it might soon conduct us to a country abounding in game, and presenting fewer obstacles to our progress than that in which we now were. Our sufferings from the want of provisions, and from the late storm, had given us a little distaste for prolonging farther than was necessary our journey towards the southwest. And our horses [274] failing so rapidly, that we

did not now believe they would hold out to bring us to the settlements by the nearest and easiest route.⁵²

The country between the sources of Purgatory creek and the stream on which we were now encamped, is a wide and elevated formation of trap rocks, resting upon horizontal sandstone. It has a loose and scanty soil, in which sand, gravel, and rolled pebbles are rarely seen, except in the vicinity of some parts where the sandstone appears to have been uncovered by the action of currents of water. In traversing it we had collected many new and interesting plants. Among these were a large decumbent *mentzelia*, an unarmed *rubus*, with species of *astragalus*,

⁵² The stream in question was not a branch of Red River, but, as appears later, a tributary of the Canadian branch of the Arkansas (see Nuttall's *Journal*, in our volume xiii, note 188). The course of the party after leaving the Purgatory carried them east of that portion of the Canadian which flows south near the base of the mountains, and brought them to some creek which joins the Canadian near the Texas line. A stream in this locality, presumably the one descended, has been named Major Long's Creek. The map is therefore wrong in placing the route of the party along the portion of the upper course of the Canadian, which is thereon marked "Rio Mora" (Raspberry River). Moreover, the Mora is not the main stream of the Canadian, as the map indicates, but a tributary from the west.

The sources of Red River lie near the Texas boundary, in the Staked Plains, south of the Canadian. Long's expedition was the third ineffectual effort of the federal government to discover them. In 1806, Captain Richard Sparks attempted to ascend the river, but was stopped by Spanish cavalry (see chapter iii in our volume xvii). In the same year Lieutenant Z. M. Pike ascended the Arkansas with instructions to find the head of the Red and descend that stream. He mistook for the Red, first the Arkansas itself and then the Rio Grande, and like Sparks was prevented by the Spaniards from carrying his exploration to a successful close. Red River was not explored to its sources until 1852, when it was ascended by a party under Capt. Randolph B. Marcy, of the Fifth Infantry. An expedition under General McLeod, which left Austin, Texas, in June, 1841, and was captured by Mexicans, is thought to have visited the sources of Red River, but it furnished no topographical data which could be relied on.

Long's party approached within perhaps a hundred and fifty miles of Santa Fé.—ED.

pentstemon, myosotis, helianthus, &c. Beside the common purslane, one of the most frequent plants about the mountains, we had observed on the Arkansa a smaller species, remarkably pilose about the axils of the leaves, which are also narrower than in *P. oleracea*. A very small *cuscuta* also occurs almost exclusively parasitic on the common purslane.

July 31st. In attempting to descend the creek from our last encampment, we found the valley so obstructed with fragments of greenstone as to be wholly impassable. We accordingly ascended into the plain; and continuing along on the brink of the precipice, arrived in a few hours at a point where the substratum of sandstone emerges to light at the base of an inconsiderable hill. It is a fine gray sandstone, having an argillaceous cement, and its lamina are so nearly horizontal, that their inclination is not manifest to the eye. It is smooth and fissile, and in every respect remarkably contrasted to the massive and imperfectly columnar greenstone which it supports.

The greenstone of this district is not universally characterized by any tinge of green in the colouring, but often, as in the instance of which we are speaking, its colour is some shade of gray, varying from light [275] gray to grayish black. The hornblende and felspar which enter into its composition, are minutely and intimately blended. Its minute structure is rarely, if ever distinctly crystalline; most frequently it is compact, and the fracture nearly even.

The hunters were kept constantly forward of the party, and in the course of the morning they killed a small fawn and a heron. At one o'clock we arrived at the confluence of a creek tributary from the east to the stream we were following, and descending into its valley by a precipitous declivity of about four hundred feet, we encamped for the

remainder of the day. This valley is bounded by perpendicular cliffs of sandstone, surmounted by extensive beds of greenstone. The fragments of the latter have fallen down into the valley, and being less perishable than the sandstone, they constitute the greater part of the *débris* accumulated along the base of the cliffs.

The sand-rock, which in some places is exposed in perpendicular precipices, is soft and friable, being very readily scratched with the point of a knife, and has been rudely inscribed, probably by the Indians, with emblematic figures commemorative of some past event. Several of the figures intended to represent men are distinguished by the sign of the cross inscribed near the head; some are represented smoking, and some leading horses, from which we infer, that the inscriptions are intended to commemorate some peaceful meeting of the Indians with the Spaniards of N. Mexico for the purposes of trade, when horses were either given as presents or bartered for other articles. Some meeting of this kind has probably happened here at no very distant period, as corn cobs were found near our encampment. From this circumstance it would appear, that the distance to the Spanish settlements cannot be very great.

Mr. Peale, who had been unwell since the cold storm of the 28th, now found some relief in the [276] opening of an abscess which had formed upon his jaw. As several of our horses had been lamed in descending into the valley, and by the rough journey of the preceding day, it was thought necessary to allow ourselves a day of rest. Since arriving in the country inhabited by the hitherto undescribed animal called the black-tailed or mule deer, we had been constantly attentive to the important object of procuring a complete specimen for preservation and descrip-

tion. Hitherto, though several had been killed, none had been brought to camp possessing all the characters of the perfect animal. Supposing we should soon pass beyond their range, a reward had been offered to the hunter who should kill and bring to camp an entire and full-grown buck.

Verplank killed one of this description, on the afternoon of the 1st of August, near enough our camp to call for assistance, and bring it in whole. They did not arrive until dark, and we had such pressing necessity for the flesh of the animal, that we could not defer dressing it until the next morning. The dimensions were accordingly taken, and a drawing made by Mr. Peale, the requisite light being furnished by a large fire. Verplank informed us, that in company with the buck which he killed, were five does, two of the common red deer, (*C. virginianus*) and three of the other kind.⁵³

⁵³ Since our return to Philadelphia, the following description of the animal has been drawn out from the dried skin, which, however, is so much injured by depredating insects, that it has not been judged proper to mount it entire. The head has therefore been separated from the remaining portion of the skin, and may be seen in the Philadelphia Museum, placed under the foot of a prairie wolf (*canis latrans*, SAY), which has been well prepared by Mr. T. Peale.

Cervus Macrotis, SAY.—Antlers slightly grooved, tuberculated at base; a small branch near the base, corresponding to the situation and direction of that of *C. Virginianus*; the curvature of the anterior line of the antlers is similar in direction, but less in degree, to that of the same deer; near the middle of the entire length of the antlers, they bifurcate equally, and each of these processes again divides near the extremity, the anterior of these smaller processes being somewhat longer than the posterior one; the ears are very long, extending to the principal bifurcation, about half the length of the whole antler; the lateral teeth are larger in proportion to the intermediate teeth than those of the *C. Virginianus* are; eye-lashes black; the aperture beneath the eye is larger than that of the species just mentioned, and pervious; the hair also is coarser, and is undulated and compressed like that of the elk (*C. major*); the colour is light reddish-brown above; sides of the head, and hair on the fore portion of the nose above, dull cinereous; the back is intermixed with blackish tipped hairs, which form a distinct line on the neck, near the head; the tail is of a pale reddish cinereous colour, and the hair of the tip of the tail is black; the tip of the trunk of the tail is some-

We observed about this camp, a yellow-flowering sensitive plant, apparently a congener to the saw-brier, (*schrunkia uncinata*) of the Platte and Arkansa. Its leaves are twice pinnated, and manifestly irritable. We also added to our collection, two new species of *gaura*, smaller than *G. mollis*, which is also found here.

Several rattle-snakes were seen, and many orbicular lizards. These are evidently of two different species, differing from each other in the length of the spines and position of the nostrils. Scarce any two of either species are precisely similar in colour, but the markings are permanent. Both species possess, in a slight [277] degree, the power of varying the shades of colour. We can find no conspicuous difference, marking the different sexes in the species with long spines; the other we have not had sufficient opportunity to examine.

Wednesday, August 2d. The rain which had fallen

what compressed, and is beneath almost destitute of hair; the hoofs are shorter and wider than those of the *Virginianus*, and more like those of the elk.

	Inches
Length from the base of the antlers to the origin of the basal process	2
of the basal process,	2½
from the basal process to the principal bifurcation, . . .	4½ to 5
from the principal bifurcation to the two other bifurcations respectively,	4½ to 5½
terminal prongs of the anterior branch, from	4 to 4½
of the posterior branch, from	2½ to 3
from the anterior base of the antlers to the tip of the superior jaw,	9½
from the anterior canthus of the eye to the tip of the jaw, .	6½
from the base of the antler to the anterior canthus, . . .	3
of the ears, more than	7½
of the trunk of the tail,	4
of the hair at the tip of the tail, from	3 to 4

This is probably the species mentioned by Lewis and Clarke, vol. i. p. 77., under the name of black-tailed deer, and more frequently in other parts of the work, by that of mule deer. It is without doubt a new species, not having been hitherto introduced into the systems.— JAMES.

during great part of the preceding day and night, had considerably raised the water in the small creek on which we were encamped. At sunrise we collected our horses and proceeded down the valley, the direction of our course south, 30° east. At the distance of two or three miles we found the valley much expanded in width, and observed a conspicuous change in the sandstone precipices which bound it. This change is the occurrence of a second variety of sand-rock, appearing along the base of the cliff, and supporting the slaty argillaceous stratum already described. These rocks have precisely the same position relative to each other, and nearly the same aggregate elevation, as the two very similar varieties observed in the valley of Purgatory creek; indeed, the conclusion that they are the continuation of the same strata as appeared similarly exposed in that valley, can scarcely be avoided. The lowermost, or red sand-rock, is here very friable and coarse. Its prevailing colour is a yellowish grey or light brown. It is often made up almost exclusively of large rounded particles of white or transparent quartz, united by a scanty cement, which usually contains lime, and sometimes, but not always, oxide of iron. In some instances the cement seems to be wanting. Its stratifications are very indistinct compared to those of the gray sandstone, and like them disposed horizontally.

On entering the wider part of the valley, we perceived before us, insulated in the middle of the plain, an immense circular elevation, rising nearly to the level of the surface of the sandstone table, and apparently inaccessible upon all sides. On its summit [278] is a level area of several acres, bearing a few cedar bushes, probably the habitation of birds only.

Leaving this, we passed three others in succession similar

to it in character, but more elevated and remarkable. Of one of them, Mr. Peale has preserved a drawing. After passing the last of these, the hills ceased abruptly, and we found ourselves once more entering a vast unvaried plain of sand. The bed of the creek had become much wider, but its water had disappeared. Meeting at length with a stagnant pool, we halted to dine, but found the water more bitter and nauseous than that of the ocean. As it could neither be used for cooking or to drink, we made but a short halt, dining on a scanty allowance of roasted venison, which we ate without bread, salt, water, or any thing else. Some fragments of amygdaloid were strewed along the bed of the stream, but we saw no more of that rock, or of the other members of the fletz trap formation in place. They may extend far towards the south-west, but of this we have no conclusive evidence. The aspect of these rocks, particularly of the amygdaloid or toad stone, is so peculiar, and its disposition so remarkably dissimilar to that of the sandstones with which it is associated, that nothing seems more natural than that it should be referred to a different origin.

In the midst of one of the violent storms we encountered in passing this trap formation, we crossed the point of a long and inconsiderable elevated ridge of amygdaloid, so singularly disposed as to suggest to every one of the party the idea that the mass had once been in a fluid state; and that, when in that state, it had formed a current, descending along the bed of a narrow ravine, which it now occupied, conforming to all the sinuosities and inequalities of the valley, as a column of semifluid matter would do. Its substance was penetrated with numerous vasicular cavities, which were observed to be elongated in the direction of the ridge. Its colour is nearly [279] black, and when two

masses are rubbed together, they yield a smell somewhat like the soot of a chimney. These appearances are so remarkable, that it is not at all surprising these rocks should have been considered of volcanic origin; and it is this supposition unquestionably from which has originated the statement contained in the late map of the United States by Mellish,⁵⁴ that the district about the sources of Red river is occupied by volcanic rocks; the information having probably been derived from the accounts of hunters.

The valleys which penetrate into the sandstone supporting these trap rocks, have usually a sandy soil, while that of the more elevated portions, though inconsiderable in quantity, is not sandy nor intermixed with pebbles or gravel. Among the few scattered and scrubby trees met with in this district, are oaks, willows, and the cottonwood; also a most interesting shrub or small tree, rising sometimes to the height of twelve or fourteen feet. It has dioecious flowers, and produces a leguminous fruit, making in several particulars a near approach to *gladitschia*; from which, however, it is sufficiently distinguished by the form of the legume, which is long and nearly cylindric, and by the seeds, which are enclosed in separate cells, immersed in a saccharine pulp, but easily detached from the valves of the legume. In these particulars it discovers an affinity to the tamarind of the West Indies. The legume or pod, which is from six to ten inches long, and near half an inch in diameter, contains a considerable quantity of a sugar-like pulp, very grateful to the taste when ripe. The leaves are pinnated,

⁵⁴ John Melish, *Map of United States with contiguous British and Spanish Possessions* (Philadelphia, 1816); for biographical sketch, see Bradbury's *Travels*, in our volume v, note 129.—ED.

and the trunk beset with spines, somewhat like the honey locust, but the spines are simple. Our Spanish interpreter informs us, that it is found about Monterrey, and other parts of the internal provinces, where it must have been noticed by Humboldt, but we have not been able to have access to his account of it. In the afternoon we travelled [280] thirteen miles, descending along the valley in a south-east direction. We extended our ride farther than we had wished, finding no suitable place to encamp. After sunset we found a small puddle of stagnant water in the bed of the creek, which, though extremely impure, was not as bitter as that near which we halted in the middle of the day. Neither wood nor bison dung could be found, so that being unable to kindle a fire, we were compelled to rest satisfied with the eighth part of a sea biscuit each for supper, that being the utmost our supplies would allow. In the afternoon one of our hunters had killed a badger; this was all the game we had, and this we were compelled to reserve until we could make a fire to cook it.

Thursday, 3d. Little delay was occasioned by our preparations for breakfast. The fourth part of a biscuit, which had been issued to each man on the preceding evening, and which was to furnish both supper and breakfast, would have required little time had all of it remained to be eaten, which was not the case. We were becoming somewhat impatient on account of thirst, having met with no water which we could drink for near twenty-four hours; accordingly, getting upon our horses at an early hour, we moved down the valley, passing an extensive tract, whose soil is a loose red sand, intermixed with gravel and small pebbles, and producing nothing but a few sun-flowers and sand cherries, still unripe. While we should remain upon a soil of this description, we could scarcely

expect to meet with water or wood, for both of which we began to feel the most urgent necessity; and as the prospect of the country before us promised no change, it is not surprising we should have felt a degree of anxiety and alarm, which, added to our sufferings from hunger and thirst, made our situation extremely unpleasant. We had travelled great part of the day enveloped in a burning atmosphere, sometimes letting fall upon [281] us the scorching particles of sand, which had been raised by the wind, sometimes almost suffocating by its entire stagnation, when we had the good fortune to meet with a pool of stagnant water, which, though muddy and brackish, was not entirely impotable, and afforded us a more welcome treat than it is in the power of abundance to supply. Here was also a little wood, and our badger, with the addition of a young owl, was very hastily cooked and eaten.

Numbers of cow buntings had been seen a little before we arrived at this encampment, flying so familiarly about the horses that the men killed several with their whips.

August 4th. We were still passing through a barren and desolate region, affording no game, and nearly destitute of wood and water. Its soil is evidently the detritus of a stratum of red sandstone and coarse conglomeratic, which is still the basis and prevailing rock. It appears to contain a considerable proportion of lime, and fragments of plaster stone and selenite are often seen intermixed with it.

Our morning's ride of sixteen miles brought us to a place where the water of the river emerges to view, rising to the surface of that bed of sand beneath which it had been concealed for a distance of more than one hundred miles. The stream is still very inconsiderable in magnitude; the water brackish, and holds suspended so large

a quantity of red earth as to give it the colour of florid blood. The general direction of its course inclining still towards the south-east, we were now induced to believe it must be one of the most considerable of the upper tributaries of Red river. A circumstance tending to confirm this opinion was our falling in with a large and much frequented Indian trace, crossing the creek from the west, and following down along the east bank. This trace consisted of more than twenty parallel paths, and bore sufficient marks of having been recently travelled, affording an explanation of [282] the cause of the alarming scarcity of game we had for some time experienced. We supposed it to be the road leading from the Pawnee Piqua village on Red river to Santa Fé.⁵⁵

Two shrubby species of cactus, smaller than the great cylindric prickly pear noticed near the Rocky Mountains, occur in the sandy plains we were now traversing. One of these, which is about four feet high, and very much branched, has long and solitary spines, a small yellow

⁵⁵ More commonly called Pawnee Picts; now probably represented by the Wichita, a remnant of which still exists on the Kiowa agency in Oklahoma. They had no connection with the Piqua Indians, and, according to some authorities, bore no resemblance, either in language or customs, to the Pawnee of the Platte. Others regard them as an offshoot of the Grand Pawnee. Indeed, the history of the tribe is somewhat of a puzzle. The name suggests the belief held by some (e. g., Stoddard, in *Sketches of Louisiana*) that there was a race of Welsh origin on Red River. The Pawnee Picts were sometimes called "White Pawnee," suggesting the same belief. They were intimately associated with the Comanche. Their name in their own language was Toweeahge, of which variant forms are Towiache, Towcash, and Toyash. As late as 1877 their home was still on the Washita. The site of their village at the time of Long's expedition is uncertain; probably it was not permanent. John Sibley (*American State Papers*, "Indian Affairs," ii, p. 731) located it (1806) thirty or forty miles above the False Washita; while Melish's map of 1816 places it opposite the mouth of Boggy River. The Indians of this region seem to have had intercourse with the Spaniards from an early date. One Brevel, born among the neighboring Caddo, told Sibley (1805) that he had visited Santa Fé forty years previous.—ED.

flower, and its fruit, which is about as large as the garden cherry, is very pleasant to the taste. The fruit of the *C. ferox*, which was also found here, was now ripe, being nearly as large as an egg, and of a deep purple colour. The *jatropha stimulosa*, a congener to the manihot or cassada of the West Indies, a cassia, an amorphia, and many new plants, were here added to our collection.

The hunters were kept constantly out during the day, but nothing was killed until evening, when Verplank brought in a young buck, which enabled us to make a full meal, the first we had eaten for several days.

Game in this portion of the country is extremely scarce, and few traces of bisons are to be seen; and as we were travelling along a frequented road, we had some reason to fear this want of game might continue.

A few wild horses had been observed in the course of the day, and towards evening one was seen following the party, but keeping at a distance. At night, after our horses had been staked in the usual manner, near our camp, we perceived him still lingering about, and at length approaching the tent so closely, that we began to entertain some hopes of capturing him alive. In attempting this we stationed a man with a long-noosed rope in the top of a cotton-wood tree, under which we tied a few of our horses; but this plan did not succeed.

[283] On the following morning [5th] one of our hunters fortunately discovered the same horse standing asleep under the shade of a tree, and having shot him, returned immediately to camp with the intelligence. We had all suffered so severely from hunger, and our present want of provisions was so great, that instead of questioning whether we should eat the flesh of a horse, we congratulated ourselves on the acquisition of so seasonable a supply.

We felt a little regret at killing so beautiful an animal, who had followed us several miles on the day before, and had lingered with a sort of confidence about our camp; but our scruples all yielded to the loud admonitions of hunger. The [next] day being Sunday, and the plain about our camp affording a supply of grass for our jaded horses, we resolved to remain encamped, seizing the opportunity of making observations for latitude, &c. The morning was calm and clear; the mercury at 69° Fah. For five mornings preceding this it had been at 58° , and in the middle of each day rose to above 90° . The moon was now too near the sun to admit of observations by lunar distances; but the meridional altitude of the sun's lower limb was taken with great care, and under circumstances favourable to accuracy, gave $35^{\circ} 16' 19''$ for the latitude of our encampment.

The river bed in the front of our camp was found by admeasurement to be sixty yards in width, twenty of which were naked sand-bar, the remaining forty covered with water, having an average depth of about ten inches. The current is moderate, the water intensely red, having nearly the temperature and the saltness of new milk. It suspends a great quantity of clay, derived from the cement of the sand-rock; but notwithstanding its impurities, it is more grateful to the taste than any we had met with since leaving the mountains, and though drank in large quantities, produces no unpleasant effect.

[284] Some spots in the low plains had here considerable fertility, depending probably, in some degree, upon the intermixture of a large proportion of calcareous matter with the soil, resulting from the disintegrated sand-rock. Though no extensive formation, a limestone appears, yet the sandstone has, in many instances, a calcareous cement;

but is traversed by numerous veins, both of gypsum and carbonate of lime.

The occurrence of the elm and the diospyros indicated a soil at least approaching towards one adapted to the purposes of agriculture. Among great numbers of interesting plants, we found here a gentian, with a flower much larger than *G. crinita*, an orobanche (probably the *O. ludoviciana*, N.) a new croton, an ipomopsis, and many others. Notwithstanding the scarcity of game which we had so long felt, we daily saw considerable numbers of antelopes, with some signs of bear, deer, and turkeys; but these animals had acquired all the vigilance which results from the habit of being often hunted, and the entire want of thick forests, and even of solitary trees or inequalities of the surface, to conceal the approach of the hunter, rendered abortive most of our attempts to take them.

The common partridge (*perdix virginianus*) was seen near this encampment; also the dove, which had never disappeared entirely in all the country we had passed.

Rising at the customary hour on the morning of the 7th, we perceived that a part of our horses were missing. As we were apprehensive that they had been stolen by Indians, a small party was immediately sent to discover the route they had taken; pursuing along their path, the men overtook them at the distance of two or three miles, as they were straying on in search of pasture.

On leaving our camp, we endeavoured to regain the trace on which we had for several days travelled; [285] but though we spent considerable time in the search, and travelled several miles off our course, we were not able to find it. This we had occasion to regret, as the surface of the country is mostly of a loose sand, bearing turfs of

wormwood and other plants, rendering the travelling difficult where there is no road. In order to shun the numerous ravines which now began to occur, we chose our route at some distance from the bank of the river, where we found the vallies deeper and more abrupt, though less frequent.

In the course of our morning's ride of twenty miles, we saw several gangs of wild horses, and with these we distinguished numbers of colts and some mules. In passing through a village of prairie dogs, of which we saw great numbers, Mr. Peale killed a burrowing owl. The bird, though killed instantly, had fallen into one of the marmot's burrows; but had luckily lodged within the reach of the arm. On opening it, the intestines were found filled with the fragments of grasshoppers' wings, and the hard parts of other insects. We have never been able, from examination, to discover any evidence that these owls prey upon the marmots, whose villages they infest.

After proceeding near twenty miles, we directed our course towards the river, which we kept at some distance on our left; arriving at it at two o'clock, we encamped and sent out the hunters; as we had some hopes of procuring a supply of provisions less repugnant to our prejudices than horse-flesh; the hunters, however, as well as others of the party, spent the remaining part of the afternoon in an unavailing search after game.

The hills which bound the immediate valley of the river at this place, have an elevation of from one to two hundred feet above the surface of the water. They are usually covered with a deep sandy soil, but disclose in their sides, points, and precipices of red sandstone, containing large quantities of very beautiful selenite. The other more

common varieties [286] of sulphate of lime are also of frequent occurrence, crystals of carbonate of lime are also met with in veins traversing the sandstone.

The *cenchrus tribuloides*, a most annoying grass, which is common here, supplies the place of the cactus *ferox*; and the troublesome stipas of the Platte now become less abundant. The *cenchrus* bears its seed in small spikelets, which consist of a number of rigid radiating spines. These clusters of barbed thorns are detached at the slightest touch, falling into our mockasins, adhering to our blankets and clothing, and annoying us at every point. The cloth-bur (*xanthium strumianum*), which had occurred in every part of our route, began now to ripen, and cast off its muricated fruit, adding one more to the sources of constant molestation.

A formidable centipede (*scolopendra*) was caught near the camp, and brought in alive by one of the engagees. It was about eight inches in length, and nearly three-fourths of an inch in breadth, being of a flattened form, and of a dark brown colour. While kept alive, it showed great viciousness of disposition, biting at every thing which came within its reach. Its bite is said to be venomous.

On the morning of the 8th, we continued our journey, crossing and recrossing the river several times. This we found necessary, as the occurrence of steep and rocky ravines made it impossible to pass along the bank, parallel to the course of the river, which here became more meandering, winding about the points of rocky and impassable promontories.

Few trees occur along this part of the valley; but grape vines were becoming numerous, and some of them loaded

with fruit. Among these, we saw numerous signs of the black bear, and one of these animals was this morning seen and shot at, but not killed. We also saw some recent tracks of bison, reviving us with the hope of a return of the days of plenty. We constantly met with the remains of Indian [287] encampments; trees which had been felled with the tomahawk, and other evidences that the country had been recently occupied by savages.

We passed in the afternoon to a more plain and fertile country than that we had been for some days traversing. The river valley became wide, and bounded on both sides by low and rounded hills instead of abrupt and perpendicular precipices. The interior of the country is but little elevated above the river, and its surface is nearly unbroken.

We crossed the beds of several creeks, apparently of large streams in the wet season, but now entirely destitute of water. As yet we had not a single tributary discharging any water into the river, nor had we been able to discover any augmentation of the volume of water, which appeared to have been derived from tributaries entering on the other side. The channels of all the creeks hitherto observed, were beds of sand without water. Several of these "dry rivers," which we passed in the course of the day, have broad valleys, which, if we may judge from a comparison with that we are descending, must have an extent of more than one hundred miles, draining a wide expanse of country of the surplus water in the rainy season, but remaining dry during great part of the year. At five o'clock we encamped, having travelled twenty-six miles due east. The hunters were immediately sent out, but returned without game, having seen nothing.

A beautiful white-flowered gaura,⁵⁶ had been for several days observed along the bank of the river. It is undescribed, and has, before flowering, a very distinct resemblance to common flax.

[288] CHAPTER V [XII]

Kaskaia Hunting Party — Indian Encampment — Unfriendly Behaviour of the Kaskaias — Some Account of their Persons and Manners — Salt Plains — Cumancias.

WEDNESDAY 9th. We breakfasted on the last of the horse, which, having been killed on the 5th, and the weather since unusually warm, had suffered from long keeping. We ate it cheerfully, only regretting that we could not promise ourselves as good for dinner. All our party, who are marksmen, were kept constantly out in search of game, but for several days had met with no success in hunting.

In the morning our course was east, thirteen and a-half miles, at the end of which we found a large spring of transparent and almost pure water, where we halted to dine. Our sufferings from want of provisions, and from the apprehension of still more distressing extremities, were now so great, that we gave little attention to any thing except hunting. Unfortunately for us the wind had

⁵⁶ *G. linifolia*, NUTTALL'S Manuscript.— Stem erect, sparingly branched, smooth leaves, smooth sessile, alternate linear lanceolate entire, with the midrib translucent. Flowers in a terminal crowded spike; after flowering the rachis extends itself, and in the ripened fruit the spike is scattered; nut triquetrous, much shorter than the linear bractea.

The flowers are white, having in the calyx a tinge of brownish purple. They are about as large as those of *G. coccinea*. The plant is three or four feet high, the leaves small and short, and the stem slender.

This is the fifth species of gaura we have met with west of the Mississippi. The *G. biennis* of the Eastern States has not hitherto been found here.— JAMES.

been high during the morning, and had blown from west to east, nearly in the direction of our route, so that whatever animals might have been in the way, had received early intimation of our approach. We were glad to observe considerable numbers of wolves, jackals, and carrion birds, as they afforded an almost certain indication of the proximity of herds of bisons. The recent tracks of a herd of these animals had been discovered, from which we learned that they had crossed the river within a day or two, in a crowded and hurried manner, as if pursued by hunters. In the afternoon we pursued on nearly the [289] same course, and halted for the night at a late hour, much exhausted with fatigue, hunger, and the heat of the day, the mercury at noon having stood at 96°. Distance twenty-eight miles.

At about 10 o'clock on the morning following, the hunters who had preceded the party, discovered on the opposite side of the river a solitary bison, of which they went immediately in pursuit. The party had made their breakfast of about two ounces of sugar and some grapes which had been found near the camp, and having been for several days reduced to a scanty allowance of provisions, they encamped immediately, and awaited with great anxiety the return of the hunters, who soon joined us, bringing in the greater part of the carcass of the bison, so extremely lean and ill-flavoured, that nothing but the most urgent necessity could have induced us to taste it. It was indeed sufficiently evident that the animal was diseased, and had lingered behind the herd for want of strength to travel. Our situation, however, afforded us not the power of choosing, and from the occurrence of this one, we were induced to hope we should soon meet with others in better condition.

We had passed on the preceding day for the first time, a small creek discharging some water into the river, and shortly afterwards the sandy bed of another, sixty yards in width, with an extensive valley, but having no water visible above the sand. This morning we also crossed a tributary affording a little water, and a dry channel communicating opposite to our encampment with the bed of the river, which is filled with small stones, occasioning an inconsiderable fall. Throughout the day the weather was extremely warm, and at sunrise on the following morning, the mercury was standing at 71°.

We had not proceeded far on our way when we discovered on the opposite side of the river a large party of Indians, approaching in an irregular and interrupted line which extended more than a mile from [290] the opposite bank. They had, as was evident, already discovered us, and their outriders were seen plunging into the river at various points, and several soon came up to shake hands with us. The foremost scarcely allowed themselves time to finish this hasty ceremony of salutation, when they rode to reconnoitre some points of bushes and patches of low grape vines on our left, manifestly to ascertain if the whole strength of our party was collected. The main body of the Indians crossed the river more slowly, and as we halted on an elevation near the point where they ascended the bank, the whole passed in review before us. They were all on horseback, and the squaws and children, composing by far the greatest part of the cavalcade, passed us without halting. Every squaw appeared to have under her care a greater or less number of horses, which were driven before her, some dragging lodge-poles, some loaded with packs of meat, and some carrying children. We were surprised to observe many small children too

young to be able by their own strength to sit upon a horse, lashed by their legs to the saddle, and riding on in entire unconcern. As they passed the deepest part of the river, many of the squaws stooped to fill their vessels with water. These were of the most primitive kind, being formed, almost without exception, of the stomach or bladder of a bison or other animal.

At length the chief, who was one of the last to cross the river, came up, and shaking each of us by the hand, with some appearance of cordiality, invited us to accompany him a short distance on his route, to a place where his party would encamp for the remainder of the day and the ensuing night. The chief was accompanied by an old man who could speak a little Spanish, by which language we communicated with him. He informed us his band were a part of the tribe of Kaskaias, or Bad-hearts, as they are called by the French; that they had been on a [291] hunting excursion to the sources of the Rio Brases and the Rio Colorado of Texas,⁵⁷ and were now on their way to meet the Spanish traders at a point near the sources of the river we were descending. They in their turn demanded who we were, whence and whither we were travelling, and were apparently satisfied with our answers, though, as afterwards appeared, they did not entirely credit what we had told them of the purposes of our journey.

To our inquiries concerning the river they answered without hesitation, that it was Red river; that at the distance of ten days' travelling in the manner of Indians with their lodges, (about one hundred miles,) we should

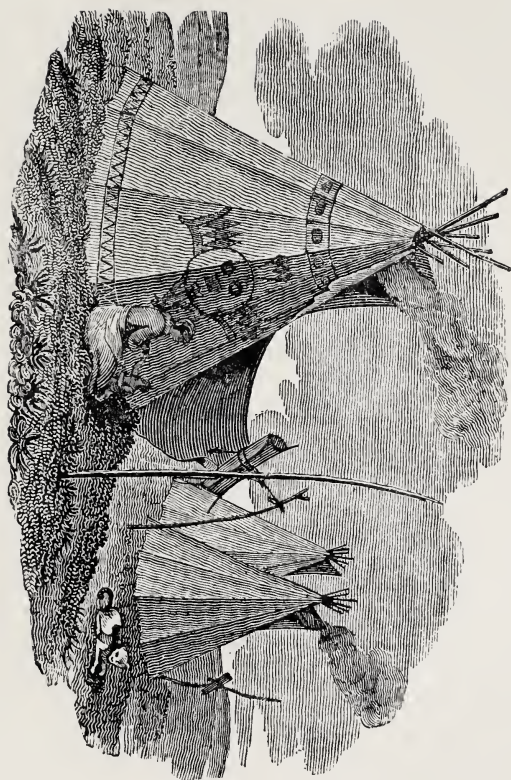
⁵⁷ The entire courses of both streams lie within the state of Texas; they head in the Staked Plains and flow southeast to the Gulf. The Colorado (Blood Red) was named Brazos del Dio (Arms of God) by a Franciscan monk; but the Mexicans confused the streams and exchanged the names.—ED.

meet with the permanent village of the Pawnee Piquas, that a large band of Cumancias were hunting on the river below, whom we should fall in with in two or three days. Having described to them the route we had pursued, and the great and frequented road on which we had travelled, they said, that when we were at the point where that road first crosses the river, we were three days' ride from Santa Fé, which was situated behind a low and distant range of hills, which we remembered to have seen from that place.⁵⁸

We hesitated a little to comply with the request of the chief, enforced as it was with some insolence, that we would return and encamp with his party. As, however, we wished to purchase horses and provisions, and to make the best use of an opportunity to become acquainted with the savages, we at length consented. The ground they chose for their encampment was a beautiful open plain, having the river in front, and a small creek on the left. We were somewhat surprised to witness the sudden manner in which this plain became covered with their tall conic lodges, rising "like an exhalation" in perfect silence and good order.

For our accommodation, a lodge was spread, enclosing as much space as possible in a semicircular [292] area in such a manner that the skin covering afforded a shade, which was all the shelter needed. In order to enlarge this tent as much as possible, the covering was raised so high upon the poles, that its lower margin did not extend to the ground by a space of several feet. To remedy this

⁵⁸ The misinformation was not necessarily given intentionally. Many of the rivers of the southwest are colored red, and the Mexicans habitually called them Rio Colorado (Blood Red River). Especially was the Canadian so known; the upper Red seems to have been called Rio Negro. The Indians borrowed the Spanish nomenclature.—ED.



the squaws brought bushes from a neighbouring thicket, which they placed around the base of the lodge in such a manner as effectually to exclude the sunshine. We were sorry to find afterwards, that this had been done not more from motives of hospitality, than to aid them in their design of pilfering from our baggage.

These skin lodges, the only habitations of the wandering savages, are carried with them complete in all their marches. Those of the Kaskaia differ in no respect from those we have already described, as used by the Otoes and others of the Missouri Indians. The poles which are six or eight to each lodge, are from twenty to thirty feet in length, and are [293] dragged constantly about in all their movements, so that the trace of a party with lodges is easily distinguished from that of a war-party. When they halt to encamp, the women immediately set up these poles; four of them being tied together by the smaller ends, the larger resting on the ground, are placed so far apart as to include as much space as the covering will surround. The remaining poles are added to strengthen the work, and give it a circular form.

The covering is then made fast by one corner to the end of the last pole which is to be raised, by which means it is spread upon the frame with little difficulty. The structure, when completed, is in the form of a sharp cone. At the summit is a small opening for window, chimney, &c. out of which the lodge-poles project some distance, crossing each other at the point where the four shortest are tied together. This tent seems to be sufficient to protect its occupants from the rain; it must however be greatly inferior in point of comfort, particularly in the winter season, to the spacious mud cabins of the settled Indians.

The poles necessary for the construction of these movable dwellings, are not to be found in any part of the country of the Kaskaias, but are purchased from the Indians of the Missouri, or others inhabiting countries more plentifully supplied with timber. We were informed by Bijeau, that five of these poles are, among the Bad-hearts, equal in value to a horse.

The chief of this band is called the Red Mouse. He is of a large stature, is somewhat past the middle age of life, and no way deficient, in his person and countenance, of those indications of strength, cunning, and ferocity, which form so important a part of greatness in the estimation of the Indians. Immediately after he had dismounted from his horse, on the halting of his party, a small wooden dish was brought [294] him, containing some water. He had received a wound some time before, apparently from an arrow, which had passed through the arm, glancing upon the humerus. Placing the dish on the ground before him, he dipped his hand repeatedly in the water, then seizing a small image of an alligator, profusely ornamented with white and blue beads, he pressed it for some time with all the strength of his disabled arm. This we saw him repeat a great number of times. The alligator appeared to be the "great medicine," on which he relied for the cure of his wound. No dressing or application of any kind was made immediately to the affected part.

As soon as we had placed our baggage in the tent provided for us, we commenced negotiations with Red Mouse, for the purchase of horses. When the articles we proposed to barter were exhibited, he appeared dissatisfied, supposing probably we had still others in reserve, which he would be able by a little obstinacy to extort

from us. He accordingly insisted that more of the packs should be opened, and undertook at last to extend his inquiries to our private baggage. This we found it necessary to resist, and a little scuffle ensued, at which many of the Indians, with a throng of women and children who surrounded us, took fright and ran off with the utmost despatch. They appeared all somewhat surprised and intimidated, and the few who remained in our lodge entreated us not to be angry at the insolence they had shown, saying we should frighten their women, and that they had mistaken us for traders. We had good reasons for wishing not to carry our resentment farther than was necessary, and accordingly relinquished the attempt to trade with them; informing them at the same time that we were hungry. Having received us in a friendly manner, we expected they would, according to custom of most Indians, have shown their good-will, by inviting us to a feast. We had, [295] therefore, waited with some impatience for their good cheer so long, that hope began to fail us. It will be recollected, we had for some days been almost in a starving condition; and we perceived that the Indians had very plentiful supplies of jerked meat. In compliance with our repeated requests, the wife of the Red Mouse at length brought us a little half-boiled bison meat, from which we had observed her to select the best pieces and give them to the children. After we had eaten this, we returned the wooden dish, on which it had been brought, at the same time asking her for more. This second demand procured us a little more jerked meat, which came, however, with such an ill grace, that as our hunger was somewhat appeased, we resolved to ask them for no more.

Some one of the party having asked for water, the

paunch of a bison was brought, containing three or four quarts, from which we all managed, though with some difficulty, to drink. Little care or labour had been bestowed on the preparation of this primitive vessel. The papillous coat which formed the internal surface of the stomach of the animal, had not been removed, nor had it lost, from long use, its original smell. The organ is suffered to retain its original form as far as is consistent with the uses to which it is applied. One of the orifices is brought nearly in contact with the other, where it is retained by a stick passed through the margin; the depending part is a sack sometimes large enough to contain six or eight gallons of water. It may well be supposed practice is required to enable a person to drink with ease and adroitness from one of these vessels; and the Indians appeared somewhat amused at our awkward attempts, in which we spilt more water in our bosoms, than was conveyed into our mouths.

When filled, these sacks cannot be set upon the ground without suffering the loss of their contents. To remedy this, the Kaskaias carry with them, as an [296] indispensable article of furniture, a sort of tripod, consisting of three light poles, tied together at one end, and sharpened at the other, by which they are driven into the ground, and the water-sack is suspended between them. One of these was placed near the entrance of almost every lodge in this encampment.

We had scarcely finished our scanty repast, when the wife of the Red Mouse showing her trencher, to signify that we were her debtors, began to beset us for presents; as we were, however, little pleased with her hospitality, we treated her demands much as she had done ours. A number of small articles were pilfered from us, and the

Indians seemed determined to show us little respect, until they perceived we were putting our guns in order for immediate use; at this they expressed some apprehension, and behaved afterwards with less rudeness.

There were thirty-two lodges, and probably about two hundred and fifty souls, including men, women, and children. Among them we could number only twenty-two armed men; and these kept constantly about us. They were armed exclusively with bows and arrows, and, as we believed, had some fear of us, though we were less than half their number. It was probably owing to our perceiving, or at least appearing to perceive this, that we escaped from them uninjured. They had many horses, probably more than five hundred, and some of them very good.

Towards evening the chief withdrew from our lodge, when we observed his squaw prepare some food for him, pounding the jerked meat to a powder with a stone pestle, using a piece of skin instead of a mortar. When reduced to very fine fragments, it is mixed with bison tallow; a little water is added, and the whole boiled together. After he had finished his meal, a council was held between all the men of the band. They met behind the chief's lodge, and we were not greatly pleased to perceive, that they [297] seemed anxious to conceal their meeting from us. At night we determined to collect all our horses, and, placing them as near as we could around our lodge, to watch them during the night; but, upon examination, a few of them only could be found, the remainder, as we believed, having been seized by the Indians. The crowd which had been assembled about us during the day, dispersed as the evening advanced, and at dark all became still in and about the encampment. At this

time the chief, whose lodge was near ours, standing at the entrance of his dwelling, harangued with great vehemence, in a voice sufficiently loud and clear to be heard by all his people, who had now retired to their several lodges. As we had no interpreter of their language, we could understand nothing of the import of his speech. Every thing remained quiet during the night, and as soon as the day dawned on the following morning, a loud harangue, similar to that in the evening, was pronounced by the chief, and immediately afterwards the whole camp was in motion. The lodges were taken down, the packs placed upon the horses, and the whole body were in a short time ready to move off. As several of our horses, our kettles, and other articles of the greatest importance to us were missing, we were unwilling to part from our hosts in the hasty and uncereemonious manner they seemed to intend. We accordingly summoned the old Indian interpreter, and made our complaint and remonstrance to the chief. He told us our horses had strayed from camp, and that several of his people were then out searching for them, and made other excuses, evidently designed to gain time until his band could move off. Perceiving we had no time to lose, Major Long ordered horses and other articles, corresponding to those we had lost, to be immediately seized. This prompt and well-timed measure produced the desired effect. Their whole camp had been some time in motion; the women [298] and children, with all their baggage, except what we had detained, had moved to a considerable distance; and we found ourselves, at this unpleasant state of the dispute, surrounded by their whole armed force. We observed they had a greater number of arrows in their hands than on the preceding day, and were not without our fears, that they intended

to carry the dispute respecting our horses and kettles to greater lengths than we could wish. We were, however, agreeably disappointed, to learn that all our lost property had been found. It was accordingly restored to us, and we parted from the Kaskaia as friends.

The time we spent with this band of savages was so short as to afford little opportunity of becoming acquainted with their manners. Their dress is nearly similar to that of the Pawnees, but consists more exclusively of leather. The women, instead of the robe, wear a loose sort of a frock without sleeves. It has an opening for the neck, just large enough to admit the head, and descends from the shoulders, hanging like a bag about the body, and reaching below the knees. When eagerly engaged in their employments, this inconvenient article of dress is thrown aside, and there remains the squabbish person of the female savage, disfigured only by a small apron of leather worn round the waist. The young females appear to be in some measure exempted from the laborious services performed by the married women, and consequently possess a degree of lightness and elasticity in their persons, which they soon lose after they begin to bear children, and subject themselves to the severe drudgeries of a married life. Their breast become so flaccid and pendulous, that we have seen them give suck to their children, the mother and the child at the same time standing erect upon the ground. This fact is sufficient to prove that they do not, at least in some instances, wean their children at a very early age.

[299] Like all savages, they suffer themselves to be covered with filth and vermin, notwithstanding which some of the young ones are far from disgusting in their appearance. They have well turned features, aquiline

noses, large and regular teeth, and eyes, which though usually rather small, are clear and brilliant. Some of the men of this band have larger and finer teeth than we remember to have seen heretofore among savages. In the general structure of their features, and the complexion of their skins, they resemble the Missouri tribes, being of a clearer and brighter red than many of the eastern Indians. In stature and in symmetry, and elegance of form, they are inferior to the Otoes, Pawnees, and to most of the Missouri Indians who reside in permanent villages. They seemed to have had little intercourse with the whites, as some among them appeared to take great pleasure in exhibiting to their friends the skin of our arms, which they requested us to show for that purpose. It was probably by means of a mistake on the part of one of the interpreters, that we received the intimation that they had never heard before of such a people as that to which we belonged. We saw among them few articles of foreign production; these they had probably received from Spanish traders. In the whole encampment we saw but one kettle, which belonged to the chief, and their great eagerness to steal our tin cups and other similar articles, sufficiently evinced that such things are scarce, and of great value among them. They have some beads, most of which are bestowed in ornamenting the dress of the children; also some pewter and brass rings, worn principally by the women. They are acquainted with the use of tobacco, and smoked with us according to the universal custom of the Indians, but expressed by signs that they found the smoke of unmixed tobacco too strong for them. One of their young men, who was in his ordinary dress when we met the party, visited us soon after we had encamped, [300]. dressed in leggings and

breech cloth, with a striped worsted vest and a silver-headed bamboo, which he sported among us with the air of a great traveller.

A child was shown us who spoke Spanish, and who was said to be a prisoner from the Spanish settlements; he was not, however, distinguished from the Kaskaias by any difference of colour or of features. He spoke frequently of the Christians, which convinced us that he had at least been among the half civilized Indians of New Mexico, who have some acquaintance with the Spanish language, and have been taught enough of the Christian religion to make use of the sign of the cross.

This band of Kaskaias occupy the country about the sources of the Platte, Arkansa, and Rio Del Norte, and extend their hunting excursions to Red river and the sources of the Brases. The great numbers of images of the alligator, which they wear either as ornaments or as amulets for the cure or prevention of disease and misfortune, afford sufficient proof of their extending their rambles to districts inhabited by that reptile. These images are of carved wood covered with leather, and profusely ornamented with beads. They are suspended about the neck, and we saw several worn in this manner by the children as well as by adults. It was observed likewise, that the rude frames to the looking-glasses, carried by several of the men, were carved so as to approximate towards the same form.

It is perhaps owing to their frequent exposure to the stormy and variable atmosphere of the country about the Rocky Mountains, that these Indians are subjected to numerous attacks of rheumatic and scrofulous diseases. We saw one old woman with a distorted spine, who had probably suffered, when young, from rickets. A young

man, of a fine athletic frame, had his neck covered with scrofulous ulcers. While he was with us he was constantly endeavouring to conceal with his robe this afflicting spectacle. He [301] remained but a short time among us, and did not make his second appearance.

An old man came frequently with a diseased leg, informing us by signs, that it had repeatedly formed large abscesses, which had discharged much matter, and afterwards healed. His frequent applications seemed to be made with the hope that we would do something for his relief. The men of this band wear the hair long, and suffer it to hang negligently about the shoulders. Some of them have a braid behind, which is garnished with bits of red cloth, small pieces of tin, &c. and descends nearly to the ground, being sometimes eked out with the hair of a horse's tail. Among the old men were several who had suffered a number of scattering hairs on the face to become of considerable length, a violation of good manners, and a neglect of personal neatness, not often met with among the Indians, and excusable only in the old. In their conduct towards us, they were guilty of more rudeness and incivility than we had been accustomed to meet with among the savages of the Missouri. Soon after we had encamped with them, one of our party who had brought along a roasted rib of a bison which had remained of our breakfast, had produced this bone, and was engaged in eating from it; an Indian who observed this came up, and without ceremony taking the rib out of his hand, carefully scraped off and ate all the meat, and returned the bone.

Though we saw much to admire among this people, we cannot but think they are among some of the most degraded and miserable of the uncivilized Indians on this

side of the Rocky Mountains. Their wandering and precarious manner of life, as well as the inhospitable character of the country they inhabit, precludes the possibility of advancement from the profoundest barbarism. As is common among other of the western tribes, they were persevering in offering us their women, but this appeared to be [302] done from mere beastliness and the hope of reward, rather than from any motive of hospitality or a desire to show us respect. We saw among them no article of food except the flesh of the bison; their horses, their arms, lodges, and dogs, are their only wealth.

In their marches they are all on horseback; the men are expert horsemen, and evince great dexterity in throwing the rope, taking in this way many of the wild horses which inhabit some parts of their country. They hunt the bison on horseback with the bow and arrow, being little acquainted with fire arms. One of them who had received a valuable pistol from a member of our party, soon afterwards returned, and wished to barter it for a knife. They begged for tobacco, but did not inquire for whiskey; it is probable they have not yet acquired a relish for intoxicating liquors. In their persons they are all uncommonly filthy, and many of the women spent a great part of their time in catching and eating the lice from the heads of their children.

At eight o'clock on the morning of the 12th of August we took our leave of the Kaskaias, having recovered from them all the articles they had stolen, except a few ropes, halters, and other small affairs, which not being indispensably necessary to us, we chose to relinquish, rather than submit to a longer delay among a people we had so much reason to dislike.

They had shown a disposition so far from friendly

towards us, that we were surprised to have escaped without having found it necessary to use our rifles among them; and as we thought it by no means improbable some of their young men might follow us to steal our horses, we moved on rather briskly, intending to travel as far in the course of the day as we conveniently could.

The river valley spread considerably a little below the point where we had encamped. In many places we found the surface a smooth and naked bed of [303] sand; in others, covered by an incrustation of salt, like a thin ice, and manifestly derived from the evaporation of water which had flowed down from the red sandstone hills bounding the valley. These hills were here of moderate elevation, the side towards the river being usually abrupt and naked. The sandstone is fine, of a deep red colour, indistinctly stratified and traversed in various directions by veins filled principally with sulphate of lime.

We had seen among the Indians on the preceding day quantities of salt in large but detached crystalline fragments, greatly resembling the common coarse salt of commerce. It had evidently been collected from some place like the one above mentioned, where it had been deposited from solution in water. When we inquired the particular locality of the Indians, they pointed to the south, and said it was found near the sources of a river heading in that direction.

At the place of our evening encampment, we saw the red-necked avoset (*recurvirostra americana*), the minute tern (*sterna minuta*), and several other strand birds which we could not approach near enough to distinguish the species. There is also a very evident similarity between the plants found here and many of those growing in saline soils along the sea coast. We saw here several species of

atriplex, chenopodium, salsola, kochia, and anabasis, all delighting in a saline soil, and affording on analysis a greater proportion of soda than most inland plants.

The day had been unusually warm. During all our mid-day halt, protracted, on account of the sultriness of the weather, to an unusual length, the mercury had remained at 100°, the thermometer being suspended in the closest shade we could find. It is to be remarked, however, that in almost every one of the numerous instances when the mercurial column had indicated so high a temperature as in [304] the one just mentioned, a fair exposure could not be had.

We often found it necessary to halt upon the open plain, where the intensity of light and heat were much increased by the reflection of the sun's rays from the sand. The temperature indicated by the thermometer, suspended in the imperfect shade of our tent, or of a small tree, was however somewhat lower than that to which our bodies were exposed; and it will be believed our sufferings from this source were great, both on our marches and while encamped in the middle of the day. Our tent being too small to afford its imperfect shade to the whole party, we sometimes suspended blankets, using, instead of poles, our rifles and gunstocks, but the protection these could afford against the scorching glare of a vertical sun, was found extremely inadequate.

At sunset we crossed what appears to be at some seasons of the year the bed of a large river at least two hundred yards wide, but at this time not a drop of water was found in it. It has a wide valley, and in every respect but the occasional want of water, is a large stream. A little beyond this we encamped for the night, having travelled twenty-eight miles.

August 13th. The course of the river had now become considerably serpentine, so that our route along its valley was of necessity somewhat circuitous. Wishing to avoid the unnecessary travelling thus occasioned, we turned off from the river and ascended the hills, hoping to meet with an Indian trace leading across the country by the most direct route. Our search was however unavailing, only affording us an opportunity of examining a portion of the country remote from the river. This we found much broken with irregular hills, abrupt ravines, and deep valleys. At ten o'clock we met with a small stream of water running towards the river we had left, and crossing it, perceived the trace of a large party of mounted Indians which had ascended [305] the creek within a few hours previous. We supposed they must have been the band of Cumancias spoken of by the Bad-hearts; and, notwithstanding some fears we have had reason to entertain, that they would have treated us no better than the Kaskaias had done, we considered ourselves unfortunate in not having met them. Much confusion and uncertainty attends the limited information hitherto before the public concerning the wandering bands of savages who occupy the country between the frontiers of New Mexico and the United States. Some who have spoken of these Indians, seem to have included several of the erratic hordes already enumerated under the name of Hietans or Cumancias. From their wandering mode of life, it unavoidably happens that the same band is met by hunters and travellers in different parts of the country at different times, consequently they receive different appellations, and the estimate of their numbers becomes much exaggerated. Of this band we have no other information to communicate, than that they appeared, from the tracks

of their horses and lodge-poles, to have been rather more numerous than the party of Bad-hearts we had lately met. A recent grave was discovered by one of our hunters at no great distance from the river, in which it was supposed one of this band had been buried. At one end of the grave was erected a pole about ten feet in length, crossed near the top by another two feet long. To the foot of this rude cross was tied a pair of mockasins, newly soled and carefully prepared for the use of the departed in that long journey on the *road of the dead* to which the good wishes of some friend had accompanied him.

Where we halted at noon were some trees, and several of these were covered with grape vines, loaded with ripe and delicious fruit. The Osage plum was also common, and now beginning to ripen. The temperature of the air inside of our tent, partially shaded by some small trees, was sufficiently [306] high to keep the mercury at 105° Fah. from twelve o'clock to three P. M. A suffocating stillness prevailed in the air, and we could find no relief from the painful glare of light and the intense heat which seemed about to reduce the scanty vegetation to ashes.

In the afternoon a thick grove of timber was descried at a distance below, and on the opposite side of the river. This cheering sight was like the discovery of land to the mariner, reminding us of the comparative comfort and plenty which we had learned to consider inseparable from a forest country, and exciting in us the hope that we should soon exchange our desolate and scorching sands for a more hospitable and more favoured region. As this little grove of trees, appearing to us like the commencement of an immense forest, gave us reason to expect we should soon meet with some small game at least; Mr. Peale, with one man, went forward to hunt. Soon after arriving at the

wood, they discovered a flock of turkeys, and the rifleman dismounting to shoot, left his mule for a moment at liberty. The animal, taking a sudden advantage of the opportunity, turned about, and made the best of his way out of the wood, pursued by Mr. Peale. This chase continued about five miles, and ended in putting the mule on the recent trace of the party, which there was no reason to fear he could be induced to quit, until he had rejoined his companions. Mr. P., who was exhausted with the pursuit, followed on but slowly, and neglecting to follow carefully the path of the party, he passed us, after we had turned aside to encamp, still travelling on in the direction of our course. At dark, believing we were still before him, and knowing we must encamp near the river, he betook himself to the sand-bars, which were now naked, occupying the greater part of what was sometimes the bed of the stream. Along these he travelled, occasionally discharging a pistol, and looking [307] about in constant expectation of seeing the blaze of our evening fire, until the moon began to sink behind the hills, when finding the light insufficient to enable him to continue his search, he tied his horse to a tree, and laid down to await the return of daylight.

At camp, guns were discharged, as large a fire kindled as we could find the means of making, and other measures taken to give notice of our situation; and late in the evening, the man whose mule had been the occasion of the accident, joined us, but was unable to give any account of Mr. Peale or the mule, which had, however, arrived before him.

At seven o'clock on the morning following, Aug. 14th, Mr. P. returned to us, having convinced himself, by a careful examination of the river valley, that we were still above. He accordingly retraced his course, until he

discovered the smoke of our encampment. He had been much harassed in the night by mosquitos; and bisons having recently occupied the shade of the tree under which he slept, the place afforded as little refreshment for the horse as for himself. Delaying a little to allow him time to make amends for his long absence, we left our camp at a later hour than usual; and moving along a wide and somewhat grassy plain, halted to dine near an old Indian breast-work by the side of a grove of cottonwood trees, intermixed with a few small-leaved elms. This breast-work is built like that described on the Platte, a few days' march above the Pawnees. We have met with the remains of similar works in almost every grove of trees, about the base of the mountains; near some of them, we have noticed holes dug a few feet into the ground, probably as caches or depositories of provisions; the earth which was raised having been removed to a distance, or thrown into the river, that it might not lead to the discovery of the concealed articles. We have met with large excavations of this kind, having an entrance comparatively small, and so placed as to be [308] easily concealed; made by white hunters to hold their furs, and whatever else they might wish to deposit in safe keeping.

The occurrence of the elm, the *phytolacca*, the *cephalanthus*, and other plants not to be met with in a desert of sand, give us the pleasing assurance of a change we have long been expecting to see in the aspect of the country. The blue jay, the purple martin, a deer, and some turkeys, were also seen near this encampment.

The bed of the river is here eight hundred yards wide, but the quantity of water visible is much less than in some places above. The magnetic variation ascertained at this camp was $12^{\circ} 30'$ east.

[309] CHAPTER VI [XIII]

Sand Plains — Mississippi Hawk — Small-leaved Elm —
Wild Horses — Hail-storm — Climate — Bisons —
Grapes — Red Sand Formation — Gypsum.

AUGUST 15th. Extensive tracts of loose sand, so destitute of plants, and so fine as to be driven with the wind, occur in every part of the saline sandstone formation we had as yet seen. They are perhaps invariably the detritus of the sand-rock, deposited in valleys and depressions, where the rapidity of the abrading currents has been checked by permanent obstacles. This loose sand differs in colour from the sandstone, which is almost invariably red; the difference may, however, have been produced simply by the operation of water suspending and removing the light colouring matter, no longer retained by the aggregation of the sandstone. These fields of sand have most frequently an undulating surface, occasioned probably not less by the operation of winds than by the currents of water; a few plum bushes, almost the only woody plants found on them, wherever they take root, form points, about which the sand accumulates, and in this manner permanent elevations are produced. The *yucca angustifolia* and the shrubby cactus are here rarely seen; the *argemone* and the night-flowering *bartonia* have not entirely disappeared, but are not of frequent occurrence.

Our horses had broken loose, and a part of them strayed from camp. This occasioned some unusual delay, and the morning was somewhat advanced when we commenced our ride. The day was bright and cool, comparatively so at least, the mercury in [310] the extreme heat rising to only 95° in the shade of our tent, whereas on several of the preceding days, it had stood at or above 100° in a fairer

exposure. A light breeze sprung up from the south-west, and continued during the remainder of the day. Our course led us twice across the bed of the river, which we found one thousand and four hundred paces in width; and without water, except in a few small pools, where it was stagnant. This wide and shallow bed is included between low banks, sometimes sloped gradually, and sometimes, though rarely, perpendicular, and rising scarcely more than four feet from the common level of the bottom of the channel. Drift wood is occasionally seen without these banks, affording evidence that they are at times not only full, but overflowed. If they are ever but partially filled, it is easy to see that what, for a great part of the year, is a naked sand beach, then becomes a broad and majestic river. It must flow with a rapid current, and in floods; its waters cannot be otherwise than of an intense red colour. The immediate valley of the river had now become little less than two miles in width; and had, in some places, a fertile soil. This happens wherever there occur spots having little elevation above the bed of the river, and which have not recently been covered with sand.

Several species of locust were extremely frequent here, filling the air by day with their shrill and deafening cries, and feeding with their bodies great numbers of that beautiful species of hawk, the falco Mississipiensis of Wilson.⁵⁹ It afforded us a constant amusement to watch

⁵⁹ Alexander Wilson (1766-1813), the son of a Scotch weaver, came to Philadelphia in 1794. After working as printer, weaver, peddler, and school-master, his natural love for the sciences, quickened by the acquaintance of William Bartram, led him (1804) to begin the excursions and collections which resulted in the *American Ornithology* (Philadelphia, 9 vols., 1808-14). Much of the plate work for these volumes was personally prepared by Wilson. His death was due to exposure in swimming a stream to capture a rare bird.—ED.

the motions of this greedy devourer in the pursuit of his favourite prey, the locust. The insect being large, and not uncommonly active, is easily taken; the hawk then pauses on the wing, suspending himself in the air, while, with his talons and beak, he tears in pieces and devours his prey.

We were also fortunate in capturing a tortoise, [311] resembling the *T. geographica* of Le Sueur.⁶⁰ The upper part of its shell was large enough to contain near a quart of water, and was taken to supply the place of one of our tin cups recently lost, while the animal itself was committed to the mess kettle. Wolves, jackals, and vultures, occurred in unusual numbers, and the carcasses of several bisons recently killed had been seen. We could also distinguish the recent marks of a hunting party of Indians, the tracks of horses and of men being still fresh in the sand. At four P. M., several bisons were discovered at a distance, and as we were in the greatest want of provisions, we halted, and sent the hunters in pursuit; and being soon apprized of their success, the requisite preparations were made for jerking the meat. Near our camp was a scattering grove of small-leaved elms. This tree (the *U. alata*, N.) is not known in the Eastern states; but it is common in many parts of Tennessee, Missouri, and Arkansa. When found in forests intermixed with other trees, it is usually of a smaller size than the *ulmus americana*, and is distinguished from it by the smallness of the leaves and the whiteness of the trunk. On the borders of the open country, where large trees often occur entirely isolated,

⁶⁰ Charles Alexander Lesueur (1778-1857) was the author of numerous studies of molluscs and reptiles, which were published in various scientific journals. During a residence at Philadelphia (1815) he was a contributor to the *Journal* published by the Academy of Sciences. Upon returning to France, he became curator of the Havre museum.—ED.

the *ulmus alata* has proportionally a more dense and flattened top than any other tree we have seen. When standing entirely alone, it rarely attains an elevation of more than thirty or thirty-five feet; but its top lying close to the ground, is spread over an area of sixty or seventy feet in diameter, and is externally so close and smooth as to resemble, when seen from a distance, a small grassy hillock.

Near our camp was a circular breast-work, constructed like those already mentioned, and large enough to contain eighty or an hundred men. We were not particularly pleased at meeting these works so frequently as we had done of late, as they indicate the country where they are found, to be one [312] particularly exposed to the depredations of Indian war-parties.

August 16. The greater part of the flesh of the bison killed on the preceding evening had been dried and smoked in the course of the night, so that we had now no fear of suffering immediately from hunger, having as much jerked meat as was sufficient to last several days.

The sky continued clear, but the wind was high, and the drifting of the sand occasioned much annoyance. The heat of the atmosphere became more intolerable, on account of the showers of burning sand, driven against us with such force as to penetrate every part of our dress, and proving so afflictive to our eyes, that it was with the utmost difficulty we could see to guide our horses. The sand is carried from the bed of the river, which is here a naked beach of more than half a mile wide, and piled in immense drifts along the bank. Some of these heaps we have seen covering all but a small portion of the upper branches of what appeared like large trees. Notwithstanding we were now three hundred miles distant from the sources of the river, we found very little water; and

that being stagnant, and so much frequented by bisons and other animals, was so loathsome both to sight and smell, that nothing but the most uncontrollable thirst could have induced us to taste it.

At a short distance below the place of our encampment, we passed the confluence of a considerable creek entering from the south-west. Though like all the streams of this thirsty region, its waters were entirely hid in the sand; yet it is evidently the bed of a large tributary, and from its direction, we conclude it can be no other than the one on which the Kaskaia informed us they had encamped the night before we met them. Its name, if it have any, among the Indians or Spaniards, we have not yet learned.⁶¹

We had, for some days, observed a few wild horses, [313] and they, as well as the bisons, were now becoming numerous. In the habits of the wild horse, we find little unlike what is seen in the domestic animal, though he becomes the most timorous and watchful of the inhabitants of the wilderness. They show a similar attachment to each other's society, though the males are occasionally found at a distance from the herds. It would appear, from the paths we have seen, that they sometimes perform long journeys, and it may be worthy of remark, that along these paths are frequently found very large piles of horse-dung, of different ages, affording sufficient evidence that this animal, in a wild state, has, in common with some others, an inclination to drop his excrement where another has done so before him. This propensity is sometimes faintly discovered in the domestic horse.

As we were about to halt for dinner, a bison who had lingered near our path was killed; but the flesh was found

⁶¹ This is Dry River, in Texas, a short distance above the Antelope Hills, of Oklahoma. It is noted by Lieut. J. H. Simpson (1849).—ED.

in too ill a condition to be eaten, as is the case with all the bulls at this season.

Soon after we had mounted our horses in the afternoon, a violent thunder-storm came on from the north-west; hail fell in such quantities, as to cover the surface of the ground, and some of the hail-stones which we examined, were near an inch in diameter. Falling with a strong wind, these heavy masses struck upon our bodies with great violence; our horses, as they had done on a similar occasion before, refused to move, except before the wind. Some of the mules turned off from our course, and had run more than half a mile before they could be overtaken. For ourselves, we found some protection, by wrapping our blankets loosely around our bodies, and waited for the cessation of the storm, not without calling to mind some instances on record of hail-stones which have destroyed the lives of men and animals.

It is not improbable, that a climate of a portion of country within the range of the immediate influence [314] of the Rocky Mountains, may be more subject to hail-storms in summer, than any other parts of North America in the same latitude. The radiation of heat from so extensive a surface of naked sand, lying along the base of this vast range of snowy mountains, must produce great local inequalities of temperature. The diminished pressure of the atmosphere, and the consequent rapidity of evaporation, in these elevated regions, may also be supposed to have an important influence on the weather. We have not spent sufficient time in the country, near the eastern range of the Rocky Mountains, to enable us to speak with confidence of the character of its climate. It is, however, sufficiently manifest, that in summer it must be extremely variable, as we have found it; the thermometer often

indicating an increase of near fifty degrees of temperature between sunrise and the middle of the day. These rapid alternations of heat and cold must be supposed to mark a climate little favourable to health, though we may safely assert that this portion of the country is exempt from the operation of those causes which produce so deleterious an atmosphere in the lower and more fertile portions of the Mississippi basin. If the wide plains of the Platte, the Upper Arkansa, and the Red river of Louisiana should ever become the seat of a permanent civilized population, the diseases most incident to such a population will probably be fevers, attended with pulmonary and pleuritic inflammations, rheumatism, scrofula, and consumption.⁶² It is true, that few, if any, instances of pulmonary consumption occur among the Indians of this region; the same remark is probably as true of the original native population of New York and New England.

Though much rain fell during this storm, it was so rapidly absorbed by the soil, that but little running water was to be seen. The bed of the river was found smooth and unobstructed, and afforded us for several days the most convenient path for travelling. As we [315] descended, we found it expand in some places to a width of near two miles. Bisons became astonishingly numerous; and in the middle of the day countless thousands of them were seen coming in from every quarter to the stagnant pools which filled the most depressed places in the channel of the river. The water of these was of course too filthy to be used in cooking our meat, and though sometimes compelled to drink it, we found little alleviation to our thirst. At our encampments, we were able to supply

⁶² This is a portion of the country famed for the supposed cure of consumption.—ED.

ourselves with water of a better quality by digging in the sand, where we scarce ever failed to meet with a supply at a few feet from the surface.

On the 17th,⁶³ we halted in the middle of the day to hunt, as, although we had killed several bisons on our marches of the preceding days, none of them had been found in good condition. The flesh of the bulls, in the months of August and September, is poor and ill flavoured; but these are much more easily killed than the cows, being less vigilant, and sometimes suffering themselves to be overtaken by the hunter, without attempting to escape. As the herds of cows were now seen in great numbers, we halted, while the hunters went out and killed several. Our camp was placed on the south-west side of the river, under a low bluff, which separates the half-wooded valley from the open and elevated plains. The small elms along this valley were bending under the weight of innumerable grape vines, now loaded with ripe fruit, the purple clusters crowded in such profusion as almost to give a colouring to the landscape. On the opposite side of the river was a range of low sand hills, fringed with vines, rising not more than a foot or eighteen inches from the surface. On examination, we found these hillocks had been produced exclusively by the agency of the grape vines, arresting the sand as it was borne along by the wind, until such quantities had been accumulated as to bury every part of the plant, except the end of the branches. Many of these were so loaded with [316] fruit, as to present nothing to the eye but a series of clusters, so closely arranged as to conceal every part of the stem. The fruit of these vines is incomparably finer than that of any other native or

⁶³ On this day the party probably crossed the line between Texas and Oklahoma. The Antelope Hills lie south of the river at this point.—ED.

exotic which we have met with in the United States. The burying of the greater part of the trunk, with its larger branches, produces the effect of pruning, inasmuch as it prevents the unfolding of leaves and flowers on the parts below the surface, while the protruded ends of the branches enjoy an increased degree of light and heat from the reflection of the sand. It is owing, undoubtedly, to these causes, that the grapes in question are so far superior to the fruit of same vine in ordinary circumstances. The treatment here employed by nature, to bring to perfection the fruit of the vine may be imitated; but without the same peculiarities of soil and exposure, and with difficulty be carried to the same magnificent extent. Here are hundreds of acres, covered with a movable surface of sand, and abounding in vines, which, left to the agency of the sun and the winds, are, by their operation, placed in more favourable circumstances than it is in the power of man, to so great an extent, to afford. We indulged ourselves to excess, if excess could be committed in the use of such delicious and salutary fruit, and invited by the cleanness of the sand, and a refreshing shade, we threw ourselves down, and slept away, with unusual zest, a few of the hours of a summer afternoon.

Our hunters had been as successful as could be wished, and at evening we assembled around a full feast of "marrow-bones;" a treat whose value must for ever remain unknown to those who have not tried the adventurous life of the hunter. We were often surprised to witness in ourselves a proof of the facility with which a part at least of the habits of the savage could be adopted. Having been in several instances compelled to practise a tedious abstinence, the return of plenty found us well disposed to make amends for these temporary privations; and we lingered,

[317] almost involuntarily, at every meal, as if determined not only to supply the deficiency of the past, but to secure such ample supplies as would enable us to defy the future.

The grapes and plums, so abundant in this portion of the country, are eaten by turkies and black bears, and the plums by wolves or jackals, as we conclude, from observing plumstones in the excrement of one of those animals. It is difficult to conceive whence such numbers of predatory animals and birds, as exist in every part of the country where the bisons are present, can derive sufficient supplies for the sustenance of life; and it is indeed sufficiently evident, their existence is but a protraction of the sufferings of famine.

The great flowering hibiscus is here a conspicuous and highly ornamental plant among the scattering trees in the low grounds. The occurrence of the black walnut, for the first time since we left the Missouri, indicates a soil somewhat adapted to the purposes of agriculture. Portions of the river valley, which are not covered with loose sands, have a red soil, resulting from the disintegration of the prevailing rocks (red sandstone and gypsum) intermixed with clay, and are covered with a dense growth of fine and nutritious grasses. Extensive tracts of the great woodless plain, at a distance from the river, appear to be based upon a more compact variety of sandstone, which is usually of a dark gray colour, and less pervious to water than the red. For this reason some copious springs are found upon it, and a soil by no means destitute of fertility, yielding sustenance to inconceivable numbers of herbivorous animals, and through them to innumerable birds and beasts of prey. It must be supposed, however, that the herds of bisons daily seen about the river, range over a much greater extent of country than was comprised

within our limited views. The want of water in many places may compel them to resort [318] frequently to the river in dry weather; though at other times they may be dispersed in the high plains.

August 18th. In speaking of a country whose geography is so little known as that of the region S. W. of the Arkansa, we feel very sensibly the want of ascertained and fixed points of reference. Were we to designate the locality of a mineral, or any other interesting object, as found twenty or thirty days' journey from the Rocky Mountains, we should do nearly all in our power; yet this sort of information would probably be thought vague and useless. The smaller rivers of this region have as yet received no names from white hunters; if they have names among the Indians, these are unknown to us. There are no mountains, hills, or other remarkable objects to serve as points of departure, nearer than the Rocky Mountains and the Arkansa. The river itself, which we supposed to be the Red river of Natchitoches, is a permanent landmark; but it is a line and not a point; and aids us only in one direction, in our attempts to designate locality. The map accompanying this work was projected in conformity to the results of numerous astronomical observations for latitude and longitude; but many of these observations were made at places which are not, and at present cannot be known by any names we might attempt to fix upon them.⁶⁴ More extensive and minute examination than we have been able to bestow might establish something like a sectional division, founded on the distribution of certain remarkable plants. The great cylindric cactus,

⁶⁴ For the same reasons it is practically impossible to follow the progress of the party; the camping places can only be approximated from the longitude indicated on the map, which is thirty to fifty miles too great for the western area, but substantially correct at the mouth of the Canadian.—ED.

the ligneous rooted cucumis, the small-leaved elm, might be used in such an attempt; but it is easy to see that the advantages resulting from it, would be for the most part imaginary.

Discussions of this sort have been much insisted on of late, and may be important as aiding in the geography of climates and soils, but can afford little assistance to topography.

[319] The geognostic features of the region under consideration, afford some foundation for a natural division, but this division must be so extremely general as to afford little satisfaction. We could only distinguish the red sandstone, the argillaceous sandstone, and the trap districts, and though each of these have distinctive characters not easy to be mistaken, they are so irregular in form and position, as to be in no degree adapted to aid in the description and identifying of particular places. On the contrary, it is to be regretted there are no established points to which we might refer, in communicating what we have observed of the position of these formations, and indicating the particular localities of some of the valuable minerals they contain.

The red sandstone, apparently the most extensive of the rocky formations of this region, has, wherever it occurs, indications of the presence of muriate of soda, and almost as commonly discloses veins and beds of sulphate of lime. The substance last mentioned had been growing more and more abundant since we left the region of the trap rocks at the sources of the river. It was now so frequent as to be conspicuous in all the exposed portions of the sand-rock, and was often seen from a distance of several miles. It occurs under various forms, sometimes we meet with the most beautiful selenite, disposed in broad reticulating

veins, traversing the sandstone; the granular and fibrous varieties, whose snowy whiteness contrasts strongly with the deep red and brown of the sandstone, are sometimes seen in thin horizontal lamina, or scattered about the surface, sometimes included in larger masses of the common amorphous plaster-stone. This last is usually of a colour approaching to white, but the exposed surfaces are more or less tinged with the colouring matter of the sand-rock, and all the varieties are so soft as to disintegrate rapidly when exposed to the air. Recent surfaces show no ferruginous tinge; [320] or rather, we would say, this colour does not appear to have been contemporaneous to the formation of the sulphate of lime, but derived from the cement of the sandstone, and to have penetrated no farther than it has been carried by the impetration of water.

We left our encampment at 5 o'clock, the morning fair; thermometer at 62°. Our courses regulated entirely by the direction of the river, were north fifty-five east, eleven miles; then north, ten east, seven miles; in all eighteen miles before dinner.⁶⁵ The average direction of our courses for some days had been rather to the north, than south of east. This did not coincide entirely with our previous ideas of the direction of Red river, and much less of the Faux Ouachitta, or False Washita,⁶⁶ which

⁶⁵ The magnetic variation was here from 12° to 13° east.— JAMES.

⁶⁶ The Washita (an Indian word meaning either "male deer," or "country of large buffaloes") should be distinguished from the river in Arkansas (Ouachita) near the sources of which are the Hot Springs (see Nuttall's *Journal*, in our volume xiii, note 125). The Washita, which, as the text states, is the chief northern tributary of Red River, rises in the "pan-handle" of Texas and flows east and southeast, roughly parallel with the Canadian. Its confluence with the Red is between the ninety-sixth and ninety-seventh meridians. At the western boundary of Oklahoma, the Washita approaches within fifteen miles of the Canadian; farther east, the approximation of its tributaries is so close as, in one place, scarcely to admit the passage of a single wagon.— ED.

being the largest of the upper branches of the Red river from the north, we believed, might be the stream we were descending. From observations taken at several points along the river we had ascertained, that we must travel three or four days' journey to the south, in order to arrive at the parallel of the confluence of the Kiamesha with the Red river,⁶⁷ and we were constantly expecting a change in the direction of our courses. The confident assurance of the Kaskaia, that we were on the Red river, and but a few days march above the village of the Pawnee Piquas, tended to quiet the suspicions we began to feel on this subject. We had now travelled, since meeting the Indians, a greater distance than we could suppose they had intended to indicate by the admeasurement of ten "lodge days," but we were conscious our communications with them had been made through inadequate interpreters, and it was not without reason, we began to fear we might have received erroneous impressions. In the afternoon, however, the river inclined more [321] to the direction we wished to travel, and we had several courses to the south of east. At sunset we pitched our tent on the north side of the river, and dug a well in the sand, which afforded a sufficient supply of wholesome, though brackish, water. Throughout the night the roaring of immense herds of bisons, and the solemn notes of the hooting owl were heard, intermixed with the desolate cries of the jackal and the screech-owl. The mulberry, and the guilandina, growing near our camp, with many of the plants and birds we had been accustomed to see in the frontier settlements of the United States, reminded us of the comforts of home and the

⁶⁷ The latitude of this point was ascertained by Major Long, in December, 1819, to be a few minutes below 34° north.—JAMES.

Comment by Ed. On the Kiamesha (Kiamichi) see Nuttall's *Journal*, in our volume xiii, note 177.

cheering scenes of civilized society, giving us at the same time the assurance that we were about to arrive at the point where we should take leave of the desert.

Saturday, August 19th. The mercury at sunrise stood at 71°. The morning was calm, and the sky tinged with that intense and beautiful blue which marks many of our summer skies, and is seen with greater pleasure by those who know that home or a good tavern is near, than by such as have no prospect of shelter save what a tent or a blanket can afford. We were now looking with much impatience for something to indicate an approach towards the village of the Pawnee Piqua, but instead of this the traces of Indians seemed to become less and less frequent. Notwithstanding the astonishing numbers of bison, deer, antelopes, and other animals, the country is less strewn with bones than almost any we have seen; affording an evidence that it is not a favourite hunting ground of any tribe of Indians. The animals also appear wholly unaccustomed to the sight of men. The bisons and wolves move slowly off to the right and left, leaving a lane for the party to pass, but those on the windward side often linger for a long time, almost within the reach of our rifles, regarding us with little appearance of alarm. We had now nothing to suffer either from the apprehension [322] or reality of hunger, and could have been content that the distance between ourselves and the settlements should have been much greater than we supposed it to be.

In the afternoon, finding the course of the river again bending towards the north, and becoming more and more circuitous, we turned off on the right hand side, and choosing an east course, travelled across the hills, not doubting but we should soon arrive again at the river. We found the country at a distance from the bed of the

river, somewhat elevated and broken, but upon climbing some of the highest hills, we again saw the landscape of the unbounded and unvaried grassy plain spread out before us. All the inequalities of the surface have evidently been produced by the excavating operation of currents of water, and they are consequently most considerable near the channels of the large streams. This remark is applicable to the vallies of all the large rivers in the central portions of the great horizontal formation west of the Alleghanies. We find accordingly, that on the Ohio, the Missouri, the Platte, the Konzas, and many of the rivers tributary to the Mississippi, the surface becomes broken in proportion as we proceed from the interior towards the bed of the river, and all the hills bear convincing evidence that they have received their existence and their form from the action of the currents of water which have removed the soil and other matters formerly occupying the vallies and elevating the whole surface of the country nearly to a common level. Regarding in this view the extensive vallies of the Mississippi and its tributaries, we naturally inquire how great a length of time must have been spent in the production of such an effect, the cause operating as it now does. It is scarcely necessary to remark, that where tributaries of the rivers in question are bounded on both sides, as they often are, by perpendicular cliffs of sandstone or limestone [323] in horizontal strata, the seams and markings on one side correspond with those on the other, indicating the stratifications to have been originally continuous.

A ride of a few miles in a direction passing obliquely from the river, brought us to a point which overlooked a large extent of the surrounding country. From this we could distinguish the winding course of a small stream,

uniting numerous tributaries from the ridge we occupied, and pursuing its course towards the south-east, along a narrow and well-wooded valley. The dense and verdant foliage of the poplars and elms contrasted strongly with the bright red of the sandstone cliffs, which rose on both sides, far surpassing the elevation of the tallest trees, and disclosing here and there masses of sulphate of lime of a snowy whiteness.⁶⁸ Looking back upon the broad valley of the river we had left, the eye rested upon insulated portions of the sandy bed disclosed by the inflections of its course or the opening of ravines, and resembling pools of blood, rather than wastes of sand. We had been so long accustomed to the red sands, that the intensity of the colouring ceased to excite any attention until a distant view afforded us the opportunity of contrasting it with the general aspect of the country.

The elevated plains we found covered with a plenteous but close-fed crop of grasses, and occupied by extensive marmot villages. The red soil is usually fine and little intermixed with gravel and pebbles, but too sandy to retain moisture enough for the purposes of agriculture. The luxuriance and fineness of the grasses, as well as the astonishing number and good condition of the herbivorous animals of this region, clearly indicate its value for the purposes of pasturage. There can be little doubt that

⁶⁸ Just east of the ninety-ninth meridian, the Canadian almost touches the thirty-sixth parallel, and then turning southeast passes below the thirty-fifth, turning northeast again near the ninety-sixth meridian. The party is now near the bend to the southeast; the map probably shows them on the nineteenth too far along the southeast course. The stream flowing southeast was doubtless a tributary of the Washita. Gypsum (sulphate of lime) occurs in great abundance along the Canadian, especially between the ninety-ninth and one hundredth meridians. Near the ninety-ninth meridian begins a wooded district known as the Cross Timbers; it varies in width from five to thirty miles, and is four hundred miles in length, extending from the Arkansas to the Brazos.—ED.

more valuable and productive grasses than the native species can with little trouble be introduced. This may easily be effected by burning the prairies at a proper season of the year, and sowing the seeds [324] of any of the more hardy cultivated gramina. Some of the perennial plants common in the prairies will undoubtedly be found difficult to exterminate, their strong roots penetrating to a great depth and enveloping the rudiments of new shoots placed beyond the reach of a fire on the surface. The soil of the more fertile plains is penetrated with such numbers of these as to present more resistance to the plough than the oldest cultivated pastures.

We had continued our march until near sunset, expecting constantly to come in view of the river, which we were persuaded must soon make a great bend to the south, but perceiving the night would overtake us in the plains, we began to search for a place to encamp. The bison paths in this country are as frequent and almost as conspicuous as the roads in the most populous parts of the United States. These converge from all directions to the places where water is to be found, and by following their guidance we were soon led to a spot where was found a small spring dripping from the side of a cliff of sandstone. The water collected in a little basin at the foot of the cliff, and flowing a few rods down a narrow ravine, disappeared in the sand. Having established our camp, we travelled down this ravine, searching for plants, while any daylight remained. The rocks were beautifully exposed, but exhibited no appearance unlike what we had been accustomed to see along the river — the red indistinctly stratified sand-rock, spotted and veined with plaster-stone and selenite. About the shelvings and crevices of the rocks, the slender corolla of the *œnothera macrocarpa*, and the purple blossoms of

the pentstemon bradburis, lay withering together, while the fading leaves and the ripening fruit seemed to proclaim the summer near its end.

On the morning following we resumed our march, altering our course from S. E. to N. E. The want of water in the hills compelled us again to seek the river. Falling in with a large bison path, which we [325] knew would conduct us by the easiest and most direct route, we travelled about fifteen miles, and encamped at noon on the bank of the river. In returning to the low grounds, we passed some grassy pastures, carpeted with the densest and finest verdure, and sprinkled with herds of deer, antelopes, and bisons. In some places the ground was covered with a purple mat of the aculeate leaves and branches of a procumbent eryngo; here rose the tall and graceful head of the *centaurea speciosa*,⁶⁹ there, in more retiring beauty, crept a humble dalea, or an ascending petalostemum.

As we approached the river, we discovered a fine herd of bisons, in the grove where we intended to place our camp, some lying down in the shade, others standing in the pool of water, which extended along under the bank. Dismounting from our horses, and approaching under cover of the bushes, we shot two of the fattest, but before we had time to reload our pieces, after the second fire, we perceived a bull running towards us, evidently with the design to make battle; we, however, gave him the slip, by escaping into the thick bushes, and he turned off to follow the retiring herd.

It is only in the seasons of their loves, that any danger is

⁶⁹ This elegant *centaurea* has a head of flowers nearly as large as that of the *cincus lanceolatus*, so commonly naturalized in the East. Some specimens from seeds, brought by Major Long, have flowered in Mrs. Peale's garden, near Germantown. The plant will be easily naturalized, and will be found highly ornamental.—JAMES.

to be apprehended from the strength and ferocity of the bison. At all other times, whether wounded or not, their efforts are to the last directed solely towards an escape from their pursuers; and at this time it does not appear that their rage is provoked, particularly by an attack upon themselves, but their unusual intrepidity is directed indiscriminately against all suspicious intruders.

We had now for some days been excessively annoyed with large swarms of blowing-flies, which had prevented our carrying fresh game along with us for more than a single day. It had been our custom at meals, to place our boiled or roasted bison-meat on the grass or the broken boughs of a tree, in the middle [326] of our circle; but this practice we now found it inexpedient to continue, as, before we could finish our repast, our table often became white with the eggs deposited by these flies. We were commonly induced to dispense with our roast meats, unless we chose to superintend the cooking ourselves, and afterwards to devote the exertions of one hand to keep away the flies, while with the other we helped ourselves to what we wished to eat. Our more common practice was to confine ourselves to the single dish of hunter's soup, suffering the meat to remain immersed in the kettle until we were ready to transfer it to our mouths.

Gnats had been rather frequent, and we began to feel once more the persecutions of the ticks, the most tormenting of the insects of this country.

The little pool near our tent afforded all the water that could be found within a very considerable distance. The bisons came in from every direction to drink, and we almost regretted that our presence frightened away the suffering animals with their thirst unslaked.

August 21st. The day was warm and somewhat rainy.

Soon after leaving our camp we saw three black bears, and killed one of them. This is the first animal of the kind we have eaten since we left the Missouri; and the flesh, though now not in the best condition, we found deserving the high encomiums commonly lavished upon it. Experienced hunters prefer it to the bison, and indeed to almost every thing except the tail of the beaver.

Black bears had been frequent in the country passed since the 15th. At this season they feed principally upon grapes, plums, the berries of the *cornus alba*, and *C. cir-cinata*, and the acorns of a small scrubby oak, common about the sand hills.

They are also fond of the flesh of animals; and it is not uncommon to see them disputing with the wolves and buzzards, for their share of the carcasses [327] of bisons and other animals, which have been left by the hunters or have died of disease. Grapes had evidently been very abundant here, but had been devoured, and the vines torn in pieces by the bears and turkies.

In the middle of the day we found the heat more oppressive, with the mercury at 96°, than we had known it in many instances when the thermometer had indicated a higher temperature by six or eight degrees. This sultry calm, was, however, soon succeeded by thunder-showers, attended with their ordinary effects upon the atmosphere. In the afternoon the country we passed was swarming with innumerable herds of bison, wild horses, deer, elk, &c. while great numbers of minute sand-pipers, yellow-shanked snipes, killdeer plovers, (*charadrius vociferus*,) and telltale godwits about the river, seemed to indicate the vicinity of larger bodies of water than we had been accustomed of late to see. During the afternoon and the night there was a continual and rapid alternation of bright calm and cloudless

skies, with sudden and violent thunder-storms. Our horizon was a little obscured on both sides by the hills and the scattered trees which skirted along the sides of the valley. As we looked out of our tent to observe the progress of the night, we found sometimes a pitchy darkness veiling every object; at others, by the clear light of the stars and the constant flashing from some unseen cloud, we could distinguish all the features of the surrounding scene: our horses grazing quietly about our tent, and the famished jackal prowling near, to seize the fragments of our plentiful supper. The thunder was almost incessant, but its low and distant mutterings were at times so blended with the roaring of the bisons, that more experienced ears than ours might have found a difficulty in distinguishing between them. At a late hour in the night some disturbance was perceived among the horses, occasioned by a herd of wild horses, who had [328] come in, and struck up a hasty acquaintance with their enslaved fellow brutes.

As it was near daylight, we forbore to do any thing to frighten away the intruders, hoping, as soon as the light should be sufficient, to have an opportunity to prove our skill in the operation of "creasing." A method sometimes adopted by hunters for taking the wild horses, is to shoot the animal through the neck, using the requisite care not to injure the spine. There is a particular part of the neck through which a horse may receive a rifle ball without sustaining any permanent injury; the blow is, however, sufficient to produce a temporary suspension of the powers of life, during which the animal is easily taken: this is called creasing, and requires for its successful performance a very considerable degree of skill and precision in the use of the rifle. A valuable but rather refractory mule belonging to our party, escaped from the cantonment near Council

Bluffs, a few days before we left that place. He was pursued by two men through the prairies of the Papillon, across the Elk Horn, and finally to the Platte, where, as they saw no prospect of taking him by other means, they resolved upon creasing. The ball, however, swerved an inch or two from its aim, and broke the neck of the animal.

CHAPTER VII [I]⁷⁰

Inconveniences Resulting from Want of Water — Wood Ticks — Plants — Loss of One of the Party — Honey Bees — Forests — Gray Sandstone — Indications of Coal — Limestone.

AUGUST 22d. So much rain had fallen during the night, that, soon after commencing our morning march, we enjoyed the novel and pleasing sight of a running stream of water. It had been only two weeks since the disappearance of running water in the river above, but during this time we had suffered much from thirst, and had been constantly tantalized with the expectation of arriving at the spot where the river should emerge from the sand. By our computation of distances we had travelled more than one hundred and fifty miles along the bed of this river without having once found it to contain running water. We had passed the mouths of many large tributaries, but they, like the river itself, were beds of naked sand. The narrative of Lewis and Clarke has been thought deserving of ridicule, on account of the frequent mention of "dry rivers;" but if not rivers, what are these extensive drains, [2] carrying off the occasional surplus of water from large districts, to be called? It is to be remembered also, that all the more considerable of them are con-

⁷⁰ Chapter i in volume iii of the original London edition.— Ed.

stantly conveying away, silent and unseen, in the bottom of their deep beds, streams of water of no trifling magnitude. This is probably the case with all such as have their sources in the primitive country of the Rocky Mountains, likewise with those which traverse any great extent of the floetz trap district, as both of these formations afford a more abundant supply of water than the sandstone tracts.

In the afternoon we saw a dense column of smoke rising suddenly from the summit of a hill at some distance, on the right hand side of the river. As at the moment the air happened to be calm, the smoke rose perpendicularly in a defined mass, and after continuing for a few minutes, ceased suddenly. Having recently observed the signs of Indians, we took this as a confirmation of our suspicions, that an encampment or a village was not far distant. We have observed that parties of Indians, whether stationary or on their marches, are never without *videttes*, kept constantly at a distance from the main body, for the purpose of giving timely notice of the approach of enemies. Several methods of telegraphic communication are in use among them, one of which is this, of raising a sudden smoke; and for this purpose they are said to keep in constant readiness a supply of combustibles. During the remainder of this and the day following we were in constant expectation of falling in with Indians. Towards evening, on the 23d, we saw an unusual number of horses, probably four or five hundred, standing among the scattered trees along the river bottom. We saw them while more than a mile distant; and from the dispersed manner of their feeding, and the great intermixture of colours among them, we concluded they must be the horses belonging to a band of Indians. We

accordingly halted, and put our guns in order for [3] immediate use; then, approaching cautiously, arrived within a few rods of the nearest before we discovered them to be wild horses. They took fright, and dispersing in several directions, disappeared almost instantly.

At eleven P. M. the double meridian altitude of the moon's lower limb, observed for latitude, was $72^{\circ} 18' 15''$, index error $0^{\circ} 8' 0''$. For the two last days our average course had inclined considerably to the south; the water, visible in the river, had increased rapidly in quantity, and the apparent magnitude of the stream was nearly equal to what it had been four hundred miles above.

August 24. Our supply of parched corn meal was now entirely exhausted. Since separating from our companions on the Arkansa, we had confined ourselves to the fifth part of a pint each per day, and the discontinuance of this small allowance was at first sensibly felt. We however became gradually accustomed to the hunter's life in its utmost simplicity, eating our bison or bear meat without salt or condiments of any kind, and substituting turkey or venison, both of which we had in the greatest plenty, for bread. The few hungry weeks we had spent about the sources of the river had taught us how to dispense with superfluous luxuries, so the demands of nature could be satisfied.

The inconvenience we felt from another source was more serious. All our clothing had become so dirty as to be offensive both to sight and smell. Uniting in our own persons the professions of traveller, hostler, butcher, and cook, sleeping on the ground by night, and being almost incessantly on the march by day; it is not to be supposed we could give as much attention to personal neatness as might be wished. Notwithstanding this, we

had kept ourselves in comfortable condition as long as we had met with water in which to wash our clothes. This had not now been the case for some weeks. The sand of the river [4] bed approaches in character so near to a fluid, that it is in vain to search for or to attempt to produce any considerable inequalities on its surface. The utmost we had been able to accomplish, when we had found it necessary to dig for water, was to scoop a wide and shallow excavation, in the bottom of which a few gills would collect, but in so small a quantity, that not more than a pint could be dipped up at a time; and since the water had appeared above the sand, it was rare to find it more than an inch or two in depth, and so turbid as to be unfit for use. The excessive heat of the weather aggravated the inconvenience resulting from the want of clean clothing, and we were not without fears that our health might suffer.

The common post oak, the white oak, and several other species, with gymnocladus or coffee-bean tree, the cercis and the black walnut, indicate here a soil of very considerable fertility; and game is so abundant, that we have it at any time in our power to kill as many bison, bear, deer, and turkies as we may wish, and it is not without some difficulty we can restrain the hunters from destroying more than sufficient to supply our wants. Our game to-day has been two bears, three deers, one turkey, a large white wolf, and a hare. Plums and grapes are very abundant, affording food to innumerable bears and turkies.

August 25. Our eventless journey affords little to record, unless we were to set down the names of the trees we pass, and of the plants and animals which occur to our notice. Our horses have become so exhausted by

the great fatigues of the trip, that we find it necessary to content ourselves with a slower progress than formerly. According to our expectations when we first commenced the descent of this river, we should ere this time have arrived near the settlements; these, however, we can plainly perceive, are still far distant. The country we are traversing has [5] a soil of sufficient fertility to support a dense population; but the want of springs and streams of water must long oppose a serious obstacle to its occupation by permanent residents. A little water is to be seen in the river, but that is stagnant, the rise occasioned by the late rains having subsided.⁷¹

Leaving our camp at an early hour, we moved down the valley towards the south-east, passing some large and beautiful groves of timber. The fox squirrel, which we had not seen since we left the Missouri, the cardinal and summer red bird, the forked-tail tyrant, and the pileated wood-pecker, with other birds and animals belonging to a woody country, now became frequent. The ravens, common in all the open plains, began to give place to crows, now first noticed. Thickets of oak, elm, and nyssa, began to occur on the hills, and the fertile soil of the low plains to be covered with a dense growth of ambrosia, helianthus, and other heavy weeds. As we were riding forward, at a small distance from the river, two noble bucks and a fawn happened to cross our path, a few rods in front of the party. As the wind blew from them to us, they could not take our scent, and turned to gaze at us without the least appearance of alarm. The leader was shot down by one of the party, when his companion and the fawn, instead of taking fright, came nearer to us, and

⁷¹ Later explorations proved that the divide between the Red and Canadian was well supplied with springs.—ED.

stood within pistol-shot, closely watching our movements, while the hunters were butchering the one we had killed. This unusual degree of tameness we could discover more or less in all the animals of this region; and it seems to indicate that man, the enemy and destroyer of all things, is less known here than in any portions of the country we have passed. In some parts of our route we have seen the antelopes take fright when we were more than a mile to the windward of them, when they could have received no intimation from us only by sight, yet it does not appear that their powers of [6] vision are in any degree superior to those of most other ruminant animals.

Sunday, August 27th. We were able to select for this day's rest a delightful situation at the confluence of a small creek from the south. The wide valley of the river here presented a pleasing alternation of heavy forests, with small but luxuriant meadows, affording a profuse supply of grass for our horses. The broad hills, swelling gently one above another as they recede from the river, are diversified with nearly the same intermixture of field and forest as in the most highly cultivated portions of the eastern states. Herds of bisons, wild horses, elk and deer, are seen quietly grazing in these extensive and fertile pastures; the habitations and the works of man alone seem wanting to complete the picture of rural abundance.

We found, however, the annoyance of innumerable multitudes of minute, almost invisible, wood ticks, a sufficient counterpart to the advantages of our situation. These insects, unlike the mosquitoes, gnats, and sand flies, are not to be turned aside by a gust of wind or an atmosphere surcharged with smoke, nor does the closest dress of leather afford any protection from their persecu-

tions. The traveller no sooner sets foot among them, than they commence in countless thousands their silent and unseen march; ascending along the feet and legs, they insinuate themselves into every article of dress, and fasten, unperceived, their fangs upon every part of the body. The bite is not felt until the insect has had time to bury the whole of his head, and in the case of the most minute and most troublesome species, nearly his whole body, under the skin, where he fastens himself with such tenacity, that he will sooner suffer his head and body to be dragged apart than relinquish his hold. It would perhaps be advisable, when they are once thoroughly planted, to suffer them to remain unmolested, [7] as the head and claws left under the skin produce more irritation than the living animal; but they excite such intolerable itching, that the finger nails are sure very soon to do all finger nails can do for their destruction. The wound, which was at first almost imperceptible, swells and inflames gradually, and being enlarged by rubbing and scratching, at length discharges a serous fluid, and finally suppurates to such an extent as to carry off the offending substance. If the insect is suffered to remain unmolested, he protracts his feast for some weeks, when he is found to have grown of enormous size, and to have assumed nearly the colour of the skin on which he has been feeding; his limbs do not enlarge, but are almost buried in the mass accumulated on his back, which extending forward bears against the skin, and at last pushes the insect from his hold. Nothing is to be hoped from becoming accustomed to the bite of these wood ticks. On the contrary, by long exposure to their venomous influence, the skin acquires a morbid irritability, which increases in proportion to the frequency and continuance of the evil, until at length the bite of a

single tick is sufficient to produce a large and painful phlegmon. This may not be the case with every one; it was so with us.

The burning and smarting of the skin prompted us to bathe and wash whenever we met with water; but we had not long continued this practice, when we perceived it only to augment our sufferings by increasing the irritation it was meant to allay.⁷²

It is not on men alone that these blood-thirsty insects fasten themselves. Horses, dogs, and many wild animals are subject to their attacks. On the necks of horses they are observed to attain a very large size. It is, nevertheless, sufficiently evident that, like mosquitoes and other blood-sucking insects, by far the greater number of wood ticks must spend their lives without ever establishing themselves as parasites on any animal, and even without a single [8] opportunity of gratifying that thirst for blood which, as they can exist and perform all the common functions of their life without its agency, would seem to have been given them merely for the annoyance of all who may fall in their way.

Among many other plants, common to the low and fertile parts of the United States, we observed the *acalypha*, and the splendid *lobelia cardinalis*, also the *cardiospermum halicacabum*, sometimes cultivated in the gardens, and said to be a native of the East Indies. It is a delicate climbing vine, conspicuous by its large inflated capsules.

⁷² In places where the absence of crocodiles permits people to enter the river, Humboldt and Bonpland observed, that the immoderate use of baths, while it moderated the pain of the old stings of *zanceadores*, rendered them more sensible to new. By bathing more than twice a day, the skin is brought into a state of nervous irritability, of which no idea can be formed in Europe. It would seem as if all feeling were carried towards the integuments. *Humboldt's Personal Narrative*, vol. v. p. 105.—JAMES.

The acacia (*robinia pseudoacacia*), the honey locust, and the ohio *æsculus* are among the forest trees, but are confined to the low grounds. The common black haw (*viburnum lentago*), the persimmon or date plum, and a *vitis* unknown to us, occur frequently, and are all loaded with unripe fruit. The mistletoe, whose range of elevation and latitude seems to correspond very nearly with that of the *miegia* and the cypress, occurs here parasitic on the branches of elms. In the sandy soils of the hills, the formidable *satropha stimulosa* is sometimes so frequent as to render the walking difficult; it is covered with long and slender prickles, capable of inflicting a painful and lasting wound, which is said to prove ruinous to the feet of the blacks in the West Indies. The cacti and the *bartonias* had now disappeared, as also the *yucca*, the *argemone*, and most of the plants which had been conspicuous in the country about the mountains. The *phytolacca decandria*, an almost certain indication of a fertile soil, the *diodia tetragonia*, a *monarda*, and several new plants, were collected in an excursion from our encampment. The red sandrock is disclosed in the sides of the hills, but appears less frequently and contains less gypsum than above, though it still retains the same peculiar marks, distinguishing it as the depository of fossil salt; extensive beds of red argillaceous soil occur, and are almost [9] invariably accompanied by saline efflorescences or incrustations. We search in vain, both in the rocks and the soils, for the remains of animals; and it is rare in this salt formation to meet with the traces of organic substances of any kind. The rock itself, though fine and compact, disintegrates rapidly, producing a soil which contains so much alumine as to remain long suspended in water, tinging with its peculiar colour all the

rivers of this region. It has been remarked, that the southern tributaries of the Arkansa, particularly the Canadian, the Ne-gracka, and the Ne-sew-ke-tonga, discharge red waters at the time of high freshets, in such quantity as to give a colouring to the Arkansa all the way to its confluence with the Mississippi; from this it is inferred that those rivers have their sources in a region of red sandstone, whose north-eastern limit is not very far removed from the bed of the Arkansa.⁷³ We attempted to take sets of equal altitudes, but failed on account of a trifling inaccuracy in our watch; the variation of the magnetic needle was found to be the same as on the 25th, namely $11^{\circ} 30'$ east.

Our hunters had been sent out in quest of game, as, notwithstanding the plenty we had enjoyed, and the great number of animals we had killed, we found it impossible, on account of the heat of the weather, and the frequency of the blowing flies, to keep a supply of meat for more than one day. At evening they returned, having killed a large black bear; the animal finding himself wounded, had turned with great fury upon the hunter, who, being alone, was compelled to seek his safety by climbing into a tree. It is well known that the black bear will sometimes turn upon his pursuers, and this it is probable is more frequently the case at this season than at any other, as they are now unincumbered with that profusion of fat, which for a part of the year renders them clumsy

⁷³ These are the three largest tributaries of the Arkansas from the west. The Ne-sew-ke-tonga is the modern Cimarron; the Negracka is the Salt Fork. The Cimarron is between the other two, in size as well as place; the Canadian is largest and most southerly. All united with the Arkansas between the thirty-fifth and thirty-seventh parallels. The two smaller streams between the Cimarron and Negracka, named Saline Creek and Strong Saline on the map, are now respectively known as Black Bear and Red Rock creeks.—ED.

and inactive, and the males are moreover [10] excited by that uncommon ferocity which belongs to the season of their loves.

August 28th. The weather during the night had been stormy, a thunder-shower from the north-west on the preceding evening had been succeeded by rain and high winds; the morning was cool, the thermometer at 64°.

We had observed, that the sand-drifts, extending along all that part of the river we had passed in the three last weeks, were piled almost exclusively along the northern bank. The country we were now passing is too fertile, and too closely covered with vegetation, to admit the drifting of the sand, except from the uncovered bed of the river; yet along the northern side of the valley we frequently saw naked piles of sand, which had been wafted to considerable distance by the winds. From the position of these sand-banks, as well as from our experience, we were induced to believe, that the high winds of this region are mostly from the south, at least during the dry season.

We left our encampment at half-past five in the morning, and followed the river; the aggregate of our courses for the day was about east, and the distance twenty-one miles. Our last course led us out of the river valley, and for a few miles lay across the open plain. Here we passed a large and uncommonly beautiful village of the prairie marmots, covering an area of about a mile square, having a smooth surface, and sloping almost imperceptibly towards the east. The grass which covers this plain is fine, thick, and close fed. As we approached the village, it happened to be covered with a herd of some thousands of bisons; on the left were a number of wild horses, and immediately before us twenty or thirty antelopes, and about half as many deer. As it was near sunset the

light fell obliquely upon the grass, giving an additional brilliancy to its dark verdure. [11] The little inhabitants of the village were seen running playfully about in all directions, and as we approached they perched themselves on their burrows, and proclaimed their terror in the customary note of alarm. A scene of this kind comprises most of what is beautiful and interesting to the passing traveller in the wide unvaried plains of the Missouri and Arkansa.

In the course of the day we passed two large creeks, one entering from the south, the other from the north; also several springs on the south side at the base of a rocky hill, rising abruptly from the bed of the river; but notwithstanding all these tributary supplies, no running water appeared above the sands of the river bed.

We passed great numbers of carcasses of bisons recently slaughtered, and the air was darkened by flights of carrion birds, among which we distinguished the obscene vulture aura, and the vulture atrata, the black vulture of the Southern States. From the great number of carcasses and skeletons, we were induced to believe ourselves on the hunting ground of some nation of Indians, and our expectations of seeing the Pawnees of Red river began to revive. Our hunters killed two fine bucks, both in uncommonly good condition for the season. The fat on the ribs of either of them was more than an inch thick. They were both changing their hair to what is called the *blue*, which at this season is a sure indication that the animal is in good condition.

August 29th. Finding the valley of the river somewhat contracted in width and extremely circuitous, we ascended into the open country on the north side, and made our way across the hills, taking a course a little

south of east. At the distance of a mile or two from the river we enjoyed a delightful view of the elevated country, beautifully varied with gentle hills, broad vallies, fertile pastures, and extensive woodlands. The soil we found superior, the timber more abundant than that of any region we had passed since [12] we left the Missouri. Extensive forests appeared in the distant horizon, and the prairies in every direction intersected by creeks and ravines, distinguished by lines of trees. The surface of the country is undulating, very similar to that of Grand river and the lower part of the Missouri, but the soil is more fertile. The first elevations rise from forty to fifty feet above the bed of the river, and these are succeeded by others, ascending by an almost imperceptible slope towards the interior. Among the trees on the uplands are the black cherry, the linden, and the honey locust, all affording indications of a fertile soil.

A little before we halted to dine, Adams, our interpreter of Spanish, having dropped some article of baggage, returned on the track for the purpose of recovering it; and as he did not join us again, we concluded he must have missed his way.

At evening we returned to the valley of the river, and placed our camp under a small cotton-wood tree, upon one of whose branches a swarm of bees were hanging. These useful insects reminded us of the comforts and luxuries of a life among men, and at the same time gave us the assurance that we were drawing near the abodes of civilization. Bees, it is said by the hunters and the Indians, are rarely if ever seen more than two hundred and fifty or three hundred miles in advance of the white settlements.

On receiving the first intimation of the absence of

Adams, who had been following in the rear of the party, a man was sent back to search for and bring him to our encampment; but as he could not be found, we concluded he had missed our trail, and probably gone forward. We were confirmed in this belief when, on the following morning, we discovered the track of a solitary mule which had passed down along the bed of the river. This we accordingly followed, not doubting but Adams must soon perceive he had passed us, and would wait until we should overtake him.

[13] The loose soft sands of the river-bed yielding to our horses feet, made the travelling extremely laborious; and the intense reflection of the rays of the sun almost deprived us of the use of our eyes. Mr. Peale's horse soon became unable to proceed at an equal pace with the remainder of the party; but as no suitable place for encampment appeared, he dismounted, and by great exertions was able to urge his animal along in the rear. The travelling in the bed of the river became so extremely inconvenient, that we resolved upon attempting to penetrate the thick woods of the bottom, and ascend to the open plains. We found, however, the woods so thick, and so interlined with scandent species of *smilax cissus*, and other climbing vines, as greatly to retard our progress, and we were soon induced to wish ourselves again upon the naked sands. Notwithstanding the annoyance they gave us, we took a pleasure in observing the three American species of *cissus* growing almost side by side. The *cissus quinquefolia*,⁷⁴ the common woodbine, cultivated as an ornament about yards and summer-houses, grows here to an enormous size, and, as well as the *cissus hederacea*, seems to prefer climbing on elms. The

⁷⁴ *Ampelopsis quinquefolia* of Michaux.— JAMES.

remaining species, the *cissus bipinnata*, is a smaller plant, and, though much branched, is rarely scandent. All of them abound in ripe fruit, which, notwithstanding its external resemblance and its close affinity to the grape, is nauseous to the taste, and does not appear to be sought with avidity even by the bears. In ascending the hills, we found them based upon a variety of sandstone, unlike the red rock of the salt formation, to which we had been so long accustomed. With this change a corresponding change takes place in the conformation of the surface and the general aspect of the country. The hills are higher and more abrupt, the forests more extensive, the streams of water more copious [14] and more serpentine in their direction; in other words, we here begin to recognize the features of a mountainous region. The sandstone which appears in the beds of the streams, and the sides of the hills, is coarse and hard, of a dark gray colour, and a horizontally laminated structure. It is deeply covered with a soil of considerable fertility, sustaining heavy forests of oak. Among these trees the upland white oak is common, but is of rather diminutive size, and often hollow. In a tree of this description we observed, as we passed, the habitation of a swarm of bees, and as it was not convenient at that time to stop, we fixed a mark upon it, and proceeded to make the best of our way towards the river. On descending the hills, we found the valley of the river much contracted in width, and the bed itself occupying less space by half than where we had left it above.

On the following day the party remained encamped to take observations, and afford an opportunity for rest to the horses. Some of the men went back about six miles to the bee-tree we had passed on the preceding day, and

brought in a small quantity of honey enclosed in the skin of a deer recently killed. About our camp we examined several lodges of sandstone, of the coarse dark grey variety above mentioned; in some instances we found it nearly approaching in character the glittering crystalline variety of the lead mines, but we sought in vain for an opportunity to observe the manner of its connexion with red sandstone.

As we were now at the western base of that interesting group of hills, to which we have attempted to give the name of the almost extinct tribe of the Ozarks,⁷⁵ and as we believed ourselves near the extreme southern bend of the river we were descending, we thought it important to ascertain our latitude and longitude by as complete sets of observations as was in our power to make; and this the favourable [15] position of the moon enabled us to do in the most satisfactory manner. The results will be seen on the map.

During the extreme heat of the day the mercury stood at 99° in a fair exposure. This extraordinary degree of heat may have been in some degree connected with the stagnation of the air between the hills, and possibly with the reverberation of the sun's rays from the naked sands; but the instrument was one of an approved character, and was exposed in the deep shade of an extensive grove of trees.

As yet no running water appeared in the river; but as the pools were large, and some of them little frequented by the bisons, we were no longer under the necessity of digging.

⁷⁵ The name is a corruption of the French *aux arcs* (with bows), applied to the Indians of Missouri and Arkansas. The hills here meant are known as the Shawnee Hills, from the Indians of that tribe, who later had villages on the Canadian about a hundred and twenty-five miles from Fort Smith.—ED.

September 1st. The sycamore, the æsculus, the mistle-toe, and the paroquet,⁷⁶ are conspicuous objects in the deep and heavy forests of the Ohio and Mississippi; with these we now found ourselves surrounded. Bisons were comparatively scarce along this part of the river, but whether this was owing to the near approach of inhabited countries, or to the great extent and almost impenetrable density of the forests on each side of the river, we were unable to determine; at night we still heard the growling of the herds in the distant prairies, and occasionally saw bisons in small bodies crossing the river.

The Kaskaia Indians had told us, that before we arrived at the village of the Pawnee Piquas, we should pass a range of blue hills. These we concluded could be no other than hills whose sides were covered with forests, like those we were now passing, and accordingly we watched with some anxiety for the appearance of something which should indicate the vicinity of an Indian village. As we pursued our way along the serpentine bed of the river, the valley became narrower, the hills more elevated, and as we crossed the rocky points of their bases, we could not [16] but observe that the sandstone was of a different character from any we had before seen. It contains more mica than that of the Alleghanies, or that of the secondary hills along the base of the Rocky Mountains; it glitters conspicuously, like mica-slate when seen in the sunshine; and this, as we found by examination, does not depend entirely on the great proportion of mica it contains, but also in some degree upon the crystalline surfaces of the minute particles. Its cement is often argillaceous, and this, as well as the impressions of some

⁷⁶ See Cuming's *Tour*, in our volume iv, note 108.—ED.

organic relics⁷⁷ we observed in it, induced us to expect the occurrence of coal-beds.

On ascending the hills from the place of our midday encampment, we found this sandstone at an elevation of about two hundred feet (according to our estimate) from the bed of the river, succeeded by a stratum of limestone of the common compact blue variety, abounding in casts of anomias, entrochi, &c. This rests horizontally upon the summits of the hills, and disintegrating less rapidly than the sandstone which forms their bases, it is sometimes left projecting in such a manner as to render access impossible. Climbing to the summit of some of the hills near the river, we had the view towards the south and east of a wild and mountainous region, covered with forests, where, among the brighter verdure of the oak, the nyssa, and the castanea pumila, we distinguished the darker shade of the juniper, and others of the coniferæ.

A little before arriving at the place of our evening encampment, we observed the track of a man who had passed on foot, and with bare feet, down the river. This we were confident could be no other than the track of our lost interpreter Adams. What accident could have deprived him of his mule we [17] were at a loss to conjecture. We found it equally difficult to account for his pushing forward with such perseverance, when he must have had every reason to believe we were behind him.

September 2d. The morning was fair, and we had commenced our journey by sunrise. At a little distance below our encampment, we passed the mouth of a large tributary from the south. It was about sixty yards wide,

⁷⁷ Strobilaria of Nuttall, belonging to the heteromorphous genus phytolithus of Martin.— JAMES.

and appeared to contain a considerable quantity of water, which was absorbed in the sands immediately at its junction with the larger stream.⁷⁸ About the mouth of this creek we saw the remains of several gar-fish (*esox osseus*); this fish is protected by a skin so flinty and incorruptible, as to be invulnerable to the attacks of birds and beasts of prey; and even when the internal soft parts have been dissolved and removed by the progress of putrefaction, the bony cuticle retains its original shape, like that of the trunk and limbs of the canoe birch, after the wood has rotted away. The gar is usually found in deep water, lying concealed in the places where small fish resort, and seizing them between his elongated jaws, which are armed with numerous small and sharp teeth. This fish, though not held in high estimation as an article of food, is little inferior, as we have often found by experiment, to the boasted sturgeon of the Hudson. Its unsightly aspect produces a prejudice against it; and in countries of such abundance as those watered by the Mississippi and its tributaries, a creature so disgusting in appearance and of so unpromising a name is rarely eaten. We had passed the creek above mentioned about a mile, when we discovered a little column of smoke ascending among some scattered oaks on the right hand bank of the river; approaching the spot, we perceived our lost interpreter, who had parted from us five days previous, sitting a few feet in advance of his fire. When we discovered him, his appearance was peculiarly striking, and indicative of the deepest despondency. [18] He had kindled a fire upon a little rocky eminence projecting to the verge of the river, and seated himself near it on the ground,

⁷⁸ Probably Sand (sometimes called Topofki) Creek. The much larger Little River, entering from the other side a few miles below, is not mentioned.—ED.

with his face turned up the river, as if in expectation of relief from that quarter. His elbows rested upon his knees, and his hands supported his head. Having sat in long expectation of seeing us, he had fallen asleep; and on being waked, it was some minutes before he recovered entire self-possession and consciousness. His long sunburnt hair hung loosely about a face it could scarcely be said to shade, and on which famine and terror had imprinted a frightful expression of ghastliness. Perhaps some consciousness of having acted an imprudent and reprehensible part, prevented any demonstrations of joy he might otherwise have shown at sight of us. Under the apprehension that accidents of this kind might occur, it had repeatedly been enjoined upon all of the party, never to lose sight of the main body when on the march. But on this occasion no regard was paid to this necessary regulation.

From his statement we learned, that after separating from us, on the morning of the 29th August, he had returned a mile or two to search for his canteen; but not finding it, in his hurry to rejoin the party, he had missed the trail, and presently found himself bewildered. Taking the bed of the river as his guide, he urged on his mule, without allowing it time to rest or to feed, till, on the third day, it refused to proceed, and was left. He then took his baggage, musket, &c. and pushed forward on foot, evidently with the hope of arriving at the Pawnee village, but by the end of the day found his strength so exhausted that he could go no farther, and was compelled to encamp. Having expended his ammunition in unsuccessful attempts to shoot turkies, he had been trying to make a substitute for fish-hooks by bending up some needles; but this project he had not brought to perfection,

and assured us he had not tasted food since the breakfast of the 29th, a period of more than five days.

[19] The small-leaved and the white elm,⁷⁹ the nettle-tree or hackberry, the cotton-wood, mulberry, black walnut, pecan, ash, sycamore, and indeed most of the trees common to the low grounds of the Mississippi, are intermixed here to form the dense forests of the river valley, while, in the more scattered woods of the highlands, the prevailing growth is oak, with some species of nyssa, the dyospiros, and a few other small trees. At evening a large flock of white pelicans passed us on their way up the river.

On the morning of the 3d, not having been able to select a suitable place for a Sunday encampment, we moved on, searching for a supply of grass, that we might halt for the day. The hunters preceded the party, and meeting with a herd of bisons and good pasturage in the same place, they killed a bull of a most gigantic stature, and waited until the remainder of the party came up, and encamped near the carcass. We have often regretted that we had not taken the dimensions of this animal, as it appeared to surpass in size any we had before killed, and greatly to exceed the ordinary stature of the bison.

Having arranged our camp, and done in the way of washing, dressing, &c. the little in our power to do, we made an excursion into the adjoining forest to collect plants, and to search for honey, which, from the great number of bees we had seen, we were conscious must be abundant. Since leaving the open country, we had remarked a very great change in the vegetation. The dense shade, and perhaps the somewhat confined air of the forest, are unfavourable to the growth of many of those

⁷⁹ *Ulmus americana* and *ulmus alata*.—JAMES.

grasses, and those robust perennials, which seem to delight in the arid soils and the scorching winds of the sandy deserts. The sensitive (*cassia nictitans*), the favourite food of the bees, some species of *hedysarum*, and a few [20] other legumina, are, however, common to both regions.

Our search for bee-trees was unsuccessful; but in our way we saw great numbers of gray squirrels, and killed a fat buck, one of whose quarters we found a heavy load to carry a mile or two to our camp.

A considerable part of the day we spent in unavailing contest with the ticks. The torment of their stings increased upon us if we were a moment idle, or attempted to rest ourselves under the shadow of a tree. We considered ourselves peculiarly fortunate when we could find the shade of a tree extending some distance on to the naked sands of the river-bed, for then the ticks were less numerous. In the middle of the day the mercury again rose to 97° , and the blowing flies swarmed in such numbers about our blankets and clothing as to allow us no rest.

About the pools near our camp we saw the little white egret; the snowy heron had been common for some days. Great numbers of cranes, ducks, pelicans, and other aquatic birds, induced us to believe that larger bodies of water than we had recently seen must be near.

Bears and wolves were still frequent; among the latter we observed a black one of a small size, which we believed to be specifically different from any one of those we had seen above. All our attempts to capture this watchful animal were without success. Since entering the region of forests, we had found the number of small animals, birds, and insects considerably increased. An enormous

black hairy spider, resembling the mygale avicularia of South America, was often seen; and it was not without shuddering that we sometimes perceived this formidable insect looking out from his hole within a few feet of the spot on which we had thrown ourselves down to rest.

[21] On the 4th we met with nothing interesting except the appearance of running water in the bed of the river. Since the 13th of the preceding month, we had travelled constantly along the river, and in all the distance passed in that time, which could not have been less than five hundred miles, we had seen running water in the river in one or two instances only, and in those it had evidently been occasioned by recent rains, and had extended but a mile or two, when it disappeared.

[22] CHAPTER VIII [II]

Osage Orange — Birds — Falls of the Canadian — Green Argillaceous Sandstone — Northern and Southern Tributaries of the Canadian — Cotton-wood — Arrival at the Arkansa — Cane Brakes — Cherokees — Belle Point.

SEPTEMBER 5th. The region we were now traversing is one of great fertility, and we had daily occasion to regret that our visit to it had not been made earlier in the season. Many unknown plants were observed, but their flowering season having passed, the fruit of many of them had ripened and fallen. We were deprived of the means of ascertaining the name and place of such as had been heretofore described, and of describing such as were new. We had, however, the satisfaction to recognize some interesting productions, among which we may enumerate a very beautiful species of bignonia, and the bow-wood

or osage orange.⁸⁰ The rocky hills abound in trees of a small size, and the cedars are sometimes so numerous, as to give their peculiar and gloomy colouring to the landscape. We listened as we rode forward to the note of a bird, new to some of us, and bearing a singular resemblance to the noise of a child's toy trumpet; this we soon

⁸⁰ *Maclura Aurantiaca*, NUTTALL.—A description of this interesting tree may be seen in Mr. Nuttall's valuable work on the Genera of North American Plants, vol. ii. p. 233. That description was drawn from specimens cultivated in the garden of Mr. Choteau, at St. Louis, where, as might be expected, the tree did not attain its full size and perfect character. In its native wilds, the *Maclura* is conspicuous by its showy fruit, in size and external appearance resembling the largest oranges. The leaves are of an oval form, with an undivided margin, and the upper surface of a smooth shining green; they are five or six inches long, and from two to three wide. The wood is of a yellowish colour, uncommonly fine and elastic, affording the material most used for bows by all the savages from the Mississippi to the Rocky Mountains. How far towards the north its use extends we have not been informed; but we have often seen it among the lower tribes of the Missouri, who procure it in trade from the Osages and the Pawnees of Red river. The bark, fruit, &c. when cut into, exude a copious, milky sap, which soon dries on exposure, and is insoluble in water; containing, probably, like the milky pieces of many other of the *urticæ*, a large intermixture of caotchouc, or gum elastic. Observing this property in the milky juice of the fruit, we were tempted to apply it to our skin, where it formed a thin and flexible varnish, affording us, as we thought, some protection from the ticks.

The fruit consists of radiating, somewhat woody fibres, terminating in a tuberculated and slightly papillose surface. In this fibrous mass the seeds, which are nearly as large as those of a quince, are disseminated. We cannot pretend to say what part of the fruit has been described as the "pulp which is nearly as succulent as that of an orange; sweetish, and perhaps agreeable when fully ripe." In our opinion, the whole of it is as disagreeable to the taste, and as unfit to be eaten as the fruit of the sycamore, to which it has almost as much resemblance as to the orange.

The tree rises to the height of twenty-five or thirty feet, dividing near the ground into a number of long, slender, and flexuous branches. It inhabits deep and fertile soils along the river valley. The *Arkansa* appears to be the northern limit of the range of the *maclura*, and neither on that river, nor on the Canadian, does the tree or the fruit attain so considerable a size as in warmer latitudes. Of many specimens of the fruit examined by Major Long, at the time of his visit to Red river, in 1817, several were found measuring five and an half inches in diameter.—JAMES.

found to be the cry of the great ivory-billed wood-pecker (*picus principalis*), the largest of the North American species, and confined to the warmer parts. The *picus pileatus* we had seen on the 25th of August, more than one hundred miles above, and this with the *picus erythrocephalus* were now common. Turkeys were very numerous. The paroquet, chuck-wills-widow, wood-robin, mocking bird, and many other small birds, filled the woods with life and music. [23] The bald eagle, the turkey buzzard, and black vulture, raven and crow, were seen swarming like the blowing flies about any spot where a bison, an elk, or a deer had fallen a prey to the hunter. About the river were large flocks of pelicans, with numbers of snowy herons, and the beautiful *ardea egretta*.

Soon after we had commenced our morning ride, we heard the report of a gun at the distance of a mile, as we thought, on our left; this was distinctly heard by several of the party, and induced us to believe that white hunters were in the neighbourhood. We had recently seen great numbers of elk, and killed one or two, which we had found in bad condition.

September 6th. Numerous ridges of rocky hills traverse the country from north-east to south-west, crossing the direction of the river obliquely. They are of a sandstone, which bears sufficient evidence of belonging to a coal formation. At the spot where we halted to dine, one of these ranges, crossing the river, produces an inconsiderable fall. As the whole width of the channel is paved with a compact horizontal sandstone, we believed all the water of the river must be forced into view, and were a little surprised to find the quantity something less than it had been almost six hundred miles above in the same stream. It would appear, that all the water

which falls in rains or flows from springs in an extent of country larger than Pennsylvania, is not sufficient to supply the evaporation of so extensive a surface of naked and heated sands.

If the river of which we speak should at any season of the year contain water enough for the purposes of navigation, it is probable the fall occasioned by the rocky traverse above mentioned will be sufficient to prevent the passage upwards. The point is a remarkable one, as being the locality of a rare and beautiful variety of sandstone. The rock which appears in the bed of the river is a compact slaty [24] sandstone, of a deep green colour, resembling some varieties of chloritic slate.

Whether the colour depends upon epidote, chlorite, or some other substance, we were not able to determine. The sandstone is micaceous, but the particles of mica, as well as those of the other integrant minerals, are very minutely divided. The same rock, as we found by tracing it to some distance, becomes of a light grey colour, and contains extensive beds of bituminous clay-slate. Its stratifications are so little inclined, that their dip cannot be estimated by the eye.

This point, though scarce deserving the name of a cataract, is so marked by the occurrence of a peculiar bed of rocks crossing the river, and by the rapid descent of the current, that it may be readily recognized by any who shall pass that way hereafter. In this view we attach some importance to it, as the only spot in a distance of six hundred miles we can hope to identify by description. In ascending, when the traveller arrives at this point, he has little to expect beyond, but sandy wastes and thirsty inhospitable steppes. The skirts of the hilly and wooded region extend to a distance of fifty or sixty miles above,

but even this district is indifferently supplied with water. Beyond commences the wide sandy desert, stretching westward to the base of the Rocky Mountains. We have little apprehension of giving too unfavourable an account of this portion of the country. Though the soil is in some places fertile, the want of timber, of navigable streams, and of water for the necessities of life, render it an unfit residence for any but a nomade population. The traveller who shall at any time have traversed its desolate sands, will, we think, join us in the wish that this region may for ever remain the unmolested haunt of the native hunter, the bison, and the jackall.⁸¹

One mile below this point (which we call the Falls or the Canadian, rather for the sake of a name than [25] as considering it worthy to be thus designated), is the entrance, from the south, of a river fifty yards wide. Its banks are lined with tall forests of cotton-wood and sycamore, and its bottoms are wide and fertile. Its bed is less choked with sand than that of the river to which it is tributary. Six or eight miles farther down, and on the other side, is the confluence of the Great North Fork, discharging at least three times as much water as we found at the falls above mentioned. It is about eighty yards wide. The beds of both these tributaries are covered with water from shore to shore, but they have gentle currents, and are not deep, and neither of them have in any considerable degree that red tinge which characterizes the Canadian. We have already mentioned that what we consider the sources of the North Fork are situated in the floetz trap country, nearly opposite those

⁸¹ Pike was the first to describe as a desert the fine grazing lands of the Great Plains; Long and Pike agreed in thinking them providentially placed to keep the American people from ruinous diffusion. The myth of the Great American Desert lived for half a century.—Ed.

of the Purgatory Creek of the Arkansa.⁸² Of one of its northern tributaries we have received some information from the recent work of Mr. Nuttall, who crossed it in his journey to the Great Salt river of Arkansa in 1819.⁸³ "Still proceeding," says he, "a little to the north of west, about ten miles further, we came to a considerable rivulet of clear and still water, deep enough to swim our horses. This stream was called the Little North Fork (or Branch) of the Canadian, and emptied into the main North Fork of the same river, nearly 200 miles distant, including its meanders, which had been ascended by the trappers of beaver." From his account it appears that the banks of this stream are wooded, and that the "superincumbent rock" is a sandstone, not of the red formation, but probably belonging to a coal district.

Its water, like that of the Arkansa, and its northern tributaries, when not swelled by rains, is of a greenish [26] colour. This colouring is sometimes so intense in the rivers of this region as to suggest the idea that the water is filled with minute confervas or other floating plants, but when we see it by transmitted light, as when a portion of it is held in a glass vessel, the colour disappears.

Three and a half miles below the confluence of the North Fork is a remarkable rock, standing isolated in the middle of the river, like the Grand Tower in the Mississippi. It is about twenty-five feet high, and fifty or sixty in diameter, and its sides so perpendicular as to render the sum-

⁸² The South Fork of the Canadian is a much smaller stream than the map indicates. Its sources are in the Shawnee Hills, not far west of the ninety-sixth meridian, near those of Boggy River, a tributary of the Red.

On the sources of the North Fork, see *ante*, note 51.—ED.

⁸³ Journal of Travels into the Arkansa Territory, by Thomas Nuttall, &c. page 200.—JAMES.

Comment by Ed. See reprint of Nuttall's *Journal*, in our volume xiii, p. 265, and note 204.

mit inaccessible. It appears to have been broken from a high promontory of gray sandstone overhanging the river on the north side.

Not being able to find grass for pasture, we rode later than usual, and were finally compelled to encamp on a sandy beach, which afforded nothing but rushes for our horses.

September 8th. The quantity of water in the river had now become so considerable as to impede our descent along the bed; but the valley was narrow, and so filled with close and entangled forests, and the uplands so broken and rugged, that no other path appeared to remain for us. We therefore continued to make our way, though with great difficulty, and found our horses much incommoded by being kept almost constantly in the water, as we were compelled to do to cross from the point of a sand-bar on one side the river, to the next on the other. Quicksands also occurred, and in places where we least expected it, our horses and ourselves were thrown to the earth without a moment's notice. These sudden falls, occasioned by sinking in the sand, and the subsequent exertion necessary to extricate themselves, proved extremely harassing to our jaded horses, and we had reason to fear that these faithful servants would fail us almost at the end of our journey.

[27] Above the falls, the width of the river, that is of the space included between its two banks, varies from three hundred yards to two miles; below it is uniformly narrower, scarce exceeding four hundred yards. The beaches are sloping, and often covered with young cottonwood or willow trees. In the Missouri, Mississippi, and to some extent in the Arkansa and its tributaries, the islands, sand-bars, and even the banks, are constantly

shifting place. In the progress of these changes, the young willows and cotton-wood trees which spring up wherever a naked beach is exposed, may be supposed to have some agency, by confining the soil with their roots, and arresting the dirt and rubbish in times of high water. On the Missouri, the first growth which springs up in these places, is so commonly the willow, that the expressions "willow-bar" and "willow-island" have passed into the language of the boatmen, and communicate the definite idea of a bar, or an island recently risen from the water. These willows become intermixed with the cotton-wood, and these trees are often almost the exclusive occupants of extensive portions of the low grounds. The foliage of the most common species of willow (*S. angustata*) is of a light green colour, and, when seen under certain angles, of a silvery gray, contrasting beautifully with the intense and vivid green of cotton-wood.⁸⁴ Within a few yards of

⁸⁴ This tree, the *populus angulata* of Pursh, has received its common name from the downy cotton-like appendage to the seed, which being ripened and shed in May, or the beginning of June, is then seen floating in the air in great quantities, and often proves somewhat troublesome to the eyes and noses of persons who are much in the open air. Baron Humboldt in speaking of the *unona aromatica* of South America, says, "Its branches are straight, and rise in a pyramid nearly like those of the poplar of the Mississippi, falsely called Lombardy poplar." *Pers. Nar.* vol. v. p. 163. As far as our observation has extended, the poplar most common in the country of the Mississippi, and indeed almost the only one which occurs, is the *angulata*, very distinct from the *populus dilatata*, the Lombardy poplar of our streets and yards, which is not a native of this country. The branches of the cotton-wood tree are not very numerous, particularly where it occurs in forests, as is the case on the Mississippi, below the confluence of the Missouri, and in the alluvial lands of most of the rivers in the United States, and show less tendency to arrange themselves in a pyramidal form than those of almost any other tree. In the open country west of the Mississippi, where, in the distance of one hundred miles, some dozens of cotton-wood trees may be found scattered, their tops are peculiarly low and straggling, as is the case with individuals of the same species which have grown in open fields, and by the road sides in various places. This tree is, perhaps, as widely distributed as any indigenous to North America, extending at least from Canada to Louisiana, and from the Atlantic to the lower part of Columbia river. It is,

the spot where we halted to dine, we were so fortunate as to find a small log canoe made fast on shore. From its appearance we were assured it had been some months deserted by its rightful owner; and from the necessity of our situation, thought ourselves justified in seizing and converting it to our use. Our pack-horses had become much weakened, and reduced by long fatigue; and in crossing the river, as we had often to do, we felt that our collections, the only valuable part of our baggage, were constantly exposed to the risk of being wetted. We accordingly made prize of the [28] canoe, and putting on board our packs and heavy baggage, manned it with two men, designing that they should navigate it down to the settlements. Aside from this canoe, we discovered in the adjoining woods the remains of an old camp, which

however, so peculiarly frequent in every part of the country watered by the Mississippi and its tributaries, that it may, with as little absurdity as usually attends names referring to locality, be called the Mississippi poplar. It is probable, that nearly one half of the whole number of trees in the recent alluvial grounds or bottom-lands of the Mississippi and its tributaries, are of this species. Whether it was considered by Humboldt as identical with the Lombardy poplar of our streets, we cannot decide.

The cotton-wood varies in magnitude in proportion to the fertility of the soil; and on the Ohio, the Mississippi, and the Arkansa, it attains the size of our largest forest trees. It is sometimes exceeded in girth, and in the number and extent of its branches, by the majestic sycamore; but in forests where the two are intermixed, as is commonly the case, it is seen to overtop all other trees. A cotton-wood tree mentioned in the journal of the exploring party who ascended Red river in 1806, and spoken of as one of many similar trees standing in a corn-field three or four days' journey above Natchitoches, measured one hundred and forty-one feet and six inches in height, and five feet in diameter. [*Freeman's MS. Journal.*] Though we have not actual admeasurements to compare with this, we are of opinion that many trees on the Arkansa would rather exceed than fall short of these dimensions. The cotton-wood affords a light and soft timber, not very durable, except when protected from the weather. Before expansion, the buds of this tree are partially covered with a viscid, resinous exudation, resembling that so conspicuous on the buds of the *populus balsamifera*, and diffusing in the spring and the early part of summer an extremely grateful and balsamic odour.—JAMES.

we perceived had been occupied by white men, and saw other convincing proofs that we were coming near some inhabited country.

We halted at evening in a small prairie on the north side of the river, the first we had seen for some time. The difficulties of navigation, arising from the shallowness of the water, prevented the arrival of the canoe and baggage until a late hour. The men had been compelled to wade a great part of the way, and drag the canoe over the sand.

September 9th. We had proceeded a mile or two from our encampment, when we discovered a herd of twenty or thirty elk, some standing in the water, and some lying upon the sand-beach, at no great distance before us. The hunters went forward, and singling out one of the finest bucks, fired upon him, at which the whole herd plunged into the thicket, and disappeared instantly. We had, however, too much confidence in the skill of the hunter to doubt but his shot had been fatal, and several of the party dismounting, pursued the herd into the woods, where they soon overtook the wounded buck. The noble animal, finding his pursuers at his heels, turned upon the foremost, who saved himself by springing into a thicket which the elk could not penetrate, but in which he soon became entangled by his enormous antlers, and fell an easy victim. His head was enveloped in such a quantity of cissus smilax and other twining vines, that scarce the tips of his horns could be seen; thus blind-folded, he stood until most of those who had followed into the woods had discharged their pieces, and did not finally yield up his life until he was stabbed to the heart with a knife. He was found in excellent condition, having more than two inches [29] of fat on the brisket. The meat was carried to the river, and deposited on a projecting point of rocks, with a note

addressed to the men who were behind with the canoe, directing them to add this supply of provisions to their cargo.

At this point, and again at an inconsiderable distance below, a soft green slaty sandstone forms the bed of the river, and occasions a succession of rapids. At noon an observation by the meridian altitude of the sun's lower limb gave us $35^{\circ} 30'$, as an approximation to our latitude. This was much greater than we had anticipated from the position assigned to Red river on the maps, and tending to confirm the unpleasant fears we had entertained of having mistaken some tributary of the Arkansa for the Red river.

Thick and extensive cane brakes occurred on both sides of the river, and though the bottoms were wide and covered with heavy forests, we could see at intervals the distant sandstone hills, with their scattered forests of cedar and oak.

September 10th. We left our camp at the usual hour, and after riding eight or ten miles, arrived at the confluence of our supposed Red river with another of a much greater size, which we at once perceived to be the Arkansa. Our disappointment and chagrin at discovering the mistake we had so long laboured under, was little alleviated by the consciousness that the season was so far advanced, our horses and our means so far exhausted, as to place it beyond our power to return and attempt the discovery of the sources of the Red river. We had been misled by some little reliance on the maps, and the current statements concerning the position of the upper branches of Red river, and more particularly by the confident assurance we had received from the Kaskaia Indians, whom we did not suspect of a wish to deceive us in an affair of such

indifference to them. Knowing there was a degree of ambiguity and confusion in the nomenclature of the rivers, we had insisted [30] particularly on being informed, whether the river we were descending was the one on which the Pawnee Piquas had their permanent residence, and this we were repeatedly assured was the case. Several other circumstances, which have been already mentioned, led us to the commission of this unfortunate mistake.

According to our estimate of distances on our courses, it is seven hundred and ninety-six and a half miles from the point where we first struck the Canadian to its confluence with the Arkansa. If we make a reasonable allowance for the meanders of the river, and for the extension of its upper branches some distance to the west of the place where we commenced our descent, the entire length of the Canadian will appear to be about one thousand miles.⁸⁵ Our journey upon it had occupied a space of seven weeks, travelling with the utmost diligence the strength of our horses would permit.

On arriving at the Arkansa, we waited a short time for our canoe, in which we crossed our heavy baggage, and then swimming our horses, we ascended the bank in search of a place to encamp, but soon found ourselves surrounded by a dense almost impenetrable cane brake, where no vestige of a path could be found. In this dilemma, no alternative remained, but to force our way forward by the most laborious exertions. The canes were of large size, and stood so close together that a horse could not

⁸⁵ This estimate of distances is excessive, unless sinuosities of the trail are included, but this is not clear from the text. The distance from Fort Smith to the western boundary of Texas, near where the party reached the Canadian proper, is less than six hundred miles; to Santa Fé, less than eight hundred miles. If the length of Major Long's Creek be added, the estimate is still more than a hundred miles too great.—ED.

move forward the length of his body without breaking by main force a great number of them. Making our way with excessive toil among these gigantic gramina, our party might be said to resemble a company of rats traversing a sturdy field of grass. The cane stalks, after being trod to the earth, often inflicted, in virtue of their elasticity, blows as severe as they were unexpected. It is not to be supposed our horses alone felt the inconvenience of this sort of travelling. We received frequent blows and bruises on all parts of our [31] bodies, had our sweaty faces and hands scratched by the rough leaves of the cane, and oftentimes, as our attention was otherwise directed, we caught with our feet and dragged across our shins the flexible and spiny stalks of the green briar.

This most harassing ride we commenced at eleven in the morning, and continued without a moment's intermission till sunset, when finding we were not about to extricate ourselves, we returned near a mile and a half on our track, to a spot where we had passed a piece of open woods large enough to spread our blankets on. Here we laid ourselves down at dark, much exhausted by our day's journey.

Our fatigue was sufficient to overcome the irritation of the ticks, and we slept soundly until about midnight, when we were awakened by the commencement of a heavy fall of rain, from which, as we had not been able to set up our tent, we had no shelter.

On the following morning, after several hours spent in most laborious travelling, like that of the preceding day, we found ourselves emerging from the river bottom, and, to our great satisfaction, exchanging the cane brakes for open woods. At the foot of the hill lay a deep morass, covered with the nelumbo and other aquatic plants. It had

probably been the former bed of the Arkansa. Observing water in some part of it, several of the party attempted to penetrate to it to drink, but the quaking bog was found so deep and soft as to be wholly impassable.

After ascending the hills we pursued our course nearly due north, through open woods of oak and nyssa, until we reached the prairie, and soon after discovered a large and frequented path, which we knew could be no other than that leading to Fort Smith. On emerging from the low grounds we had no longer the prospect of boundless and monotonous plains. We were in a region of mountains and forests, [32] interspersed with open plains, but these were of limited extent.

September 12th. We resumed our journey at sunrise. The weather was cool, and the morning fair. The wide and densely-wooded valley of the Arkansa lay on our route. The course of the river was marked by a long and undulating line of mist, brightening in the beams of the rising sun; beyond rose the blue summits of the Point Sucre and Cavaniol mountains, "in the clear light above the dews of morn." Though the region about us had all the characters of a mountain district, we could discover little uniformity in the direction of the ranges. The Cavaniol and Point Sucre mountains are situated on opposite sides of the Poteau, above the confluence of James's Fork, and are parts of low ridges running from S. W. to N. E. On the north side of the Arkansa is a ridge of considerable elevation, nearly parallel in direction to the aggregate course of the river.⁸⁶

In the path we were travelling we observed tracks indi-

⁸⁶ For Point Sucre and Cavaniol Mountains and the Poteau River, see Nuttall's *Journal*, in our volume xiii, notes 167, 169.—ED.

cating that men on horseback had recently passed, and in the course of the morning we met a party of six or eight Indians, who informed us they were of the Cherokee nation; that we should be able to arrive at the military post at Belle Point on the following morning. They were on horseback, carrying guns, kettles, and other articles suited to a hunting excursion, which it was their purpose to make in the territory of the Osages; one or two of them had on round hats; all had calico shirts, or some other article of foreign fabric, as part of their dress; and all had a mean and squalid appearance, indicating that they had been in habits of frequent intercourse with the whites. They were unable to speak or understand our language, but communicated with considerable ease by means of signs.⁸⁷

At eleven o'clock we halted, and as our provisions were nearly exhausted, most of the party went out to [33] hunt, but were not fortunate in meeting game. We found, however, some papaw trees with ripe fruit of an uncommon size and delicious flavor, with which we were able to allay our hunger. The papaw tree attains a much larger size, and the fruit arrives at greater perfection, in the low grounds of the Arkansa, than on the Missouri, Ohio, and Upper Mississippi, where it is also common. The papaws fall to the ground as soon as fully ripe, and are eagerly sought after by the bears, raccoons, opossum, &c.

In the afternoon one of our mules failed so far that the undivided attention and the most active exertions of two men were required to keep him moving at the rate of a slow walk. This made it necessary we should encamp, and we accordingly selected a spot in a fine open grove of oaks, where we pitched our tent. Among other inter-

⁸⁷ For the Arkansas Cherokee, see *ibid.*, note 145.—ED.

esting plants we collected here the beautiful vexillaria⁸⁸ virginica of Eaton, which has the largest flower of any of the legumina of the United States, as is remarked by Mr. Nuttall. We saw also the menispermum lyoni, hieracium marianum, rhexia virginica. As we encamped at an early hour, the party dispersed in several directions in search of game. Nothing was found except a swarm of bees, affording as much honey as we chose to eat for supper. While engaged in felling the tree we heard guns discharged at a distance, and by sending persons to examine, learned they were those of a party of men accompanying Mr. Robert Glen on his way from Fort Smith to the trading-house at the mouth of the Verdigrise.⁸⁹ In the evening we received a visit from Mr. G., whose camp was distant only about a mile from ours. He was the first white man not of our own party whom we had seen since the 6th of [34] the preceding June. From him we received a highly acceptable present of coffee, biscuits, a bottle of spirits, &c.; also the welcome intelligence that Captain Bell, with his division of the exploring party, had arrived at Fort Smith some days previous.

Early on the 13th we took up our march in a heavy fall of rain, which continued until we arrived at the little plantation opposite Belle Point. Here we emerged from the deep silence and twilight gloom of the forest, and found ourselves once more surrounded by the works of men. The plantation consisted of a single enclosure, covered

⁸⁸ We have adopted this name from the author of the "Manual of Botany," as a substitute for that of the 1712 genera of Persoon, which has been so severely censured by President Smith in Rees's Cyclopaedia. It is equally appropriate with the old name, and contains no offensive allusion.—JAMES.

⁸⁹ At this time, Hugh Glenn had a trading-house about a mile above the mouth of the Verdigris. See Nuttall's *Journal*, volume xiii of our series, note 35. Whether there was another person named Robert, or whether the name is an error, is uncertain.—ED.

with a thick crop of maize, intermixed with gigantic stalks of the phytolacca decandria and ricinus palma christi; forming a forest of animal plants, which seemed almost to vie with miegias and annonas occupying the adjacent portions of the river bottoms. As we followed the winding pathway past the little cottage, at the corner of the field we were saluted by several large dogs, who sprang up from the surrounding weeds. Urged by our impatience to see human faces, we called out to the people in the cottage to direct us to Belle Point, although we knew the path could not be mistaken, and that we were not ten rods from the ferry. Notwithstanding our inquiries might have been thought impertinent, we were very civilly answered by a young woman, who came to the door, and attempted to silence the clamours of the dogs. We were not surprised to find our uncouth appearance a matter of astonishment both to dogs and men.

On arriving at the beach opposite Fort Smith, and making known our arrival by the discharge of a pistol, we perceived the inhabitants of the garrison and our former companions coming down to the ferry to give us welcome; and being soon carried over, we met from Major Bradford and Captain Ballard a most cordial and flattering reception.⁹⁰ Captain Bell, with Mr. Say, Mr. Seymour, and Lieutenant Swift, having experienced numerous casualties, and achieved [35] various adventures, having suffered much from hunger, and more from the perfidy of some of their soldiers, had arrived on the 9th, and were all in good health. The loss most severely felt was that of the manu-

⁹⁰ For sketch of Major William Bradford see *ibid.*, note 166.

James H. Ballard was appointed from Maryland (1813) as second lieutenant in the Thirty-sixth Infantry. He was transferred to the Rifle Regiment in 1815, and two years later made captain. In 1821 he was transferred to the Second Infantry, and died in 1823.—ED.

script notes of Mr. Say and Lieutenant Swift. Measures for the apprehension of the deserters and the recovery of these important papers were taken immediately, and a reward of two hundred dollars offered. Mr. Glen had kindly volunteered his assistance and his influence to engage the Osages in the pursuit. But these efforts were unavailing.

We arrived at Fort Smith at about nine o'clock, and were soon afterwards invited to a bountifully furnished breakfast-table at Major Bradford's. Our attentive host knowing the caution necessary to be used by men in our situation, restrained us from a too unbounded indulgence in the use of bread, sweet potatoes, and other articles of diet to which we had been long unaccustomed. The experience of a few days taught us that it would have been fortunate for us if we had given more implicit heed to his caution.

The site of Fort Smith was selected by Major Long in the fall of 1817, and called Belle Point, in allusion to its peculiar beauty. It occupies a point of elevated land immediately below the junction of the Arkansa and the Poteau, a small tributary from the south-west. Agreeably to the orders of General Smith,⁹¹ then commanding the ninth military department, a plan of the proposed work was submitted to Major Bradford, at that time and since commandant at the post, under whose superintendance the works have been in part completed, not without some deviation from the original plan. The buildings now

⁹¹ Thomas A. Smith entered the army in 1803, from Georgia, on an appointment as second lieutenant of artillerists. In 1808 he became captain in the rifles, and was promoted successively to lieutenant-colonel (1810), colonel (1812), and brigadier-general (1814). On the reorganization of the army in 1815 he was retained as colonel in the Rifle Regiment, with brevet rank of brigadier-general. He resigned in 1818. See volume xiv, note 118.—ED.

form two sides of a hollow square, terminated by strong block-houses at the opposite angles, and fronting towards the river.

The hill which forms the basis of the fort is a dark gray micaceous sandstone in horizontal laminæ, and is elevated about thirty feet above the water. The [36] country back of the fort has an undulating surface, and rises gradually as it recedes, being covered with heavy forests of oak, tulip tree, sassafras, &c. Towards the south and south-east, at no great distance, rise the summits of the mountainous range already mentioned. The Sugar-loaf and Cavaninol mountains (the former being one of a group of these similar conic summits), are visible from some points near Fort Smith. The Poteau, so called by the French from the word signifying a post or station, rises sixty or seventy miles south of Belle Point, opposite to the sources of the Kiamesha, a branch of Red river. Nearly the whole of its course is through a hilly or mountainous region, but it is one so sparingly supplied with water, that the Poteau, within two miles of its confluence with the Arkansas, is in the dry season no more than a trifling brook. In an excursion which we made from Fort Smith, we ascended the Poteau about a mile and a half, where we observed an extensive bed of bituminous clay-slate, indicating the neighbourhood of coal. Tracing this slate to the south and east, we found it to pass under a very considerable sandstone hill. Several circumstances induce us to believe that it is also underlayed by a sandstone similar to that at the fort. Attentive examination will show that these rocks have a slight inclination towards the east; and if the bituminous slate in question had been underlayed by compact limestone, as has been conjec-

tured,⁹² it is highly probable this rock would have emerged near where the sandstone appears at Belle Point. We make this remark because, although we have often seen both limestone and bituminous clay-slate in various parts of the Arkansa territory, it has never been our fortune to meet with them in connexion. A few rods above this bed of bituminous slate we crossed the Poteau almost at a single step, and without wetting the soles [37] of our mockasins, so inconsiderable was the quantity of water it contained. The point between the confluence of the Poteau and the Arkansa is low and fertile bottom land, and, like that on the opposite side of the river, covered with dense and heavy forests of cotton-wood, sycamore, and ash, intermixed with extensive and impenetrable cane brakes. In these low grounds the beautiful papaw tree, whose luscious fruit was now ripe, occurs in great abundance. It rises to the height of thirty or forty feet, and its trunk is sometimes not less than a foot in diameter.

Grape vines, several scandent species of smilax and cissus, and a most singular vine allied to menispermum, are so intermixed with the sturdy under growth as to render the woods almost impassable. Paths have been opened by the people of the garrison where they have been found necessary by cutting away the canes and small trees; but they may be said to resemble subterranean passages, to which the rays of the sun never penetrate. We found the air in these, and indeed in every part of heavy forests, stagnant, and so loaded with the effluvia of decaying vegetable substances as to be immediately oppressive to the lungs. After spending an hour or two in an atmosphere

⁹² Nuttall's Travels into the Arkansa Territory, p. 144.— JAMES.

Comment by Ed. Page 202 of the reprint in volume xiii of our series.

of this kind, we found ourselves perceptibly affected with languor and dizziness.

The gardens at Fort Smith afforded green corn, melons, sweet potatoes, and other esculent vegetables, which to us had for a long time been untasted luxuries. It is probable we did not exercise sufficient caution in recommending the use of these articles, as we soon found our health beginning to become impaired. We had been a long time confined to a meat diet, without bread or condiments of any kind, and were not surprised to find ourselves affected by so great and so sudden a change. It may be worth while to remark, that we had been so long unaccustomed to the use of salt, that the sweat of our faces had lost all perceptible saltiness, and that the ordinary [38] dishes which were brought to our mess-table at the Fort appeared unpalatable, on account of being too highly seasoned.

In a region of extensive river alluvion, supporting, like that of the Arkansa, boundless forests, impervious to the winds, and the rays of the sun, it is not surprising that a state of the atmosphere should exist unfavourable to health; intermitting, remitting, and continued bilious fevers prevail during the summer and autumn, and in many instances terminate fatally. Among recent settlers, the want of the most common comforts, of the advice and attendance of skilful physicians, and, above all, the want of cleanliness, and the destructive habits of intemperance, are causes operating powerfully to produce and aggravate these diseases. The settlements about Fort Smith were sickly, and we saw numbers with that peculiar sallowness of complexion which accompanies those chronic derangements of the functions of the liver, so often the consequence of bilious fevers. It is obvious, that the causes of the acknowledged sickness of the recent settlements in the south and

west, are in a great measure local and unconnected with the climate; by the increase of settlements, and the progress of cultivation, they will be in part removed.

Fort Smith is garrisoned by one company of riflemen, under the command of Major Bradford. Among other important designs contemplated in the establishment of this post, one was to prevent the encroachments of the white settlers upon the lands still held by the Indians. Some of the most fertile portions of the Arkansa territory are those about the Verdigrise, Skin Bayou, Illinois, Six Bulls, &c.;⁹³ in which some unauthorised settlements were heretofore made, but have recently been abandoned, in compliance with the requirements of the commandant at Fort Smith.⁹⁴

⁹³ Skin (sometimes called Big Skin) Bayou is a small northern tributary of the Arkansas, which debouches about ten miles above Fort Smith. The Six Bulls is the Neosho (or Grand) River. For the Verdigris, Illinois, and Neosho, see Nuttall's *Journal*, in our volume xiii, notes 189, 192, 193.—ED.

⁹⁴ The country traversed by the Canadian, explored for the first time by Long's party, soon became familiar to traders through the increasing intercourse with the Mexican provinces; but it was not again examined under government auspices until 1845, when Lieut. James W. Abert, detached by Frémont near Bent's Fort on the upper Arkansas, crossed to the Canadian somewhat west of Long's route, and descended it, visiting *en route* the sources of the Washita. For his report see Senate Document No. 438, Twenty-ninth Congress, first session. In 1849, Lieut. J. H. Simpson surveyed a route for a road from Fort Smith to Santa Fé, and the map accompanying his report shows in considerable detail the course of the Canadian. See Senate Executive Document No. 12, Thirty-first Congress, first session.—ED.

AN ACCOUNT OF THE EXPEDITION OF THE DETACHED PARTY ON THE ARKANSAS RIVER⁹⁵

[39] CHAPTER IX [III]

The Party Proceed upon their Route — Thunder-storm
— Some Account of the Kiawa, Kaskaia, Arrapaho,
and Shienne Indians — New Species of Toad.

MONDAY, 24th. After the departure of so great a portion of our numbers, combined with whom we could hardly be regarded as sufficiently powerful to contend successfully with a force which we were daily liable to encounter, we were well aware of the necessity of exerting an increased vigilance, and of relying still more implicitly upon our individual means of defence, than we had hitherto done. Our small band now consisted of Captain Bell, Lieut. Swift, Mr. Seymour, Mr. Say, and the interpreters Bijeau, Ledoux, and Julien, with five soldiers.

We were cheered by the reflection, that we had successfully performed a very considerable and most important part of our expedition, harmonizing well [40] with each other, and unassailed by any urgent visible dangers, such as had been anticipated by ourselves, and predicted by others. We could not however look forward to the trackless desert which still separated us from the utmost boundary of civilisation, and which we had no reason to believe was less than a thousand miles in breadth, traversed in many portions of its extent by lawless war-parties of various

⁹⁵ The following six chapters are from the pen of Mr. Say.— JAMES.

nations of Indians, without an emotion of anxiety and of doubt as to the successful termination of our enterprize.

We were this afternoon assailed by a very severe thunder-storm, and Julien, who had skirted the timber for the purpose of hunting, was electrified by a flash of lightning, which entered the earth within a few yards of him. The wind was violent, and blew the drops of rain with so much force into our faces, that our horses refused to proceed, constantly endeavouring to turn themselves about from the storm; we at length yielded to their obstinacy, and halted upon the plain. The storm did not abate until we were thoroughly drenched to the skin, when, after being delayed some additional space of time, until a straggler had joined us, we continued our journey.

Wednesday, 26th. Late in the afternoon we saw, at a great distance before us, evident indications of the proximity of Indians, consisting of conic elevations, or skin lodges, on the edge of the skirting timber, partially concealed by the foliage of the trees. On our nearer approach we observed their horses grazing peacefully, but becoming suddenly frightened, probably by our scent, they all bounded off towards the camp, which was now full in view. Our attention was called off from the horses by the appearance of their masters, who were now seen running towards us with all their swiftness. A minute afterwards we were surrounded by them, and were happy [41] to observe in their features and gestures a manifestation of the most pacific disposition; they shook us by the hand, assured us by signs that they rejoiced to see us, and invited us to partake of their hospitality. We however replied, that we had brought our own lodges with us, and would encamp near them. We selected for this purpose a clear spot of ground on the bank of the river, intending to re-

main a day or two with this little known people, to observe their manners and way of life. We had scarcely pitched our tents, watered and staked our horses, before presents of jerked bison meat were brought to us by the squaws, consisting of selected pieces, the fattest and the best, in sufficient quantity for the consumption of two or three days. After the usual ceremony of smoking, they were informed to what nation we belonged, and that further communication would be made to their principal men to-morrow, whom we wished summoned for that purpose. About sun-down they all retired, and left us to our repose. The Indians were encamped on both sides of the river, but the great body of them was on the opposite bank, their skin lodges extending in a long single line; the extremities of which were concealed from our view by the timber of the islands in the river, whilst about ten lodges only were erected on the side we occupied, and within a quarter of a mile of our camp.

Soon after our arrival, an Indian well stricken in years inquired if we had seen a man and squaw within a day or two on our route: we described to him the appearance of the calf and his squaw. "That is my wife," said he, "who has eloped from me, and I will instantly go in pursuit of them." He accordingly procured a companion, and both were soon on their way, well armed and mounted.

Thursday, 27th. Notice having been sent to the opposite party of our arrival, and of our wish to see [42] the principal men, four chiefs presented themselves at our camp this morning at an early hour, as representatives of the several bands, of the same number of different nations, here associated together, and consisting of Kiawas, Kaskaias or Bad-hearts, Shiennes (sometimes written Chayenne), and Arrapahoes. Several distinguished men



Kiowa Encampment

accompanied them. We had made some little preparation for their reception, by spreading skins for them to sit on, hoisting our flag, and selecting a few presents from our scanty stores. They arranged themselves with due solemnity, and the pipe being passed around, many of them seemed to enjoy it as the greatest rarity, eyeing it as it passed from mouth to mouth, and inhaling its fragrant smoke into their lungs with a pleasure which they could not conceal. One individual of a tall emaciated frame, whose visage was furrowed with deep wrinkles, evidently rather the effect of disease than of age, after filling his lungs and mouth topfull of smoke, placed his hands firmly upon his face and inflated cheeks as in an ecstasy, and unwilling to part with what yielded the utmost pleasure, he retained his breath until suffocation compelled him to drive out the smoke and inhale fresh air, which he effected so suddenly and with so much earnestness, and singular contortion of countenance, that we restrained ourselves with some effort from committing the indecorum of a broad laugh. We had the good fortune to find one of them who could speak the Pawnee language tolerably well; he had acquired it in his early youth, whilst residing in a state of captivity in that nation; so that, by means of our interpreters, we experienced no difficulty in acquainting them, that we belonged to the numerous and powerful nation of Americans,⁹⁰ that we had been sent by our great chief, who presides over all the country, to [43] examine that part of his territories, that he might become acquainted with its features, its produce and population; that we had been many moons on our journey, and had passed through many red nations, of whose hospitality we largely partook, &c.

⁹⁰ In contradistinction from Spaniards, near whose frontier these Indians rove.—JAMES.

This was translated into French, then into Pawnee, and afterwards into Kiawa, and the other languages, by their respective interpreters. In reply, a chief expressed his surprise that we had travelled so far, and assured us that they were happy to see us, and hoped that as a road was now open to our nation, traders would be sent amongst them.

We assured them, that traders would be soon amongst them, provided we could report on our return that we had been hospitably treated while travelling through their country.

A few presents, such as knives, combs, vermilion, &c., were then laid before the chiefs, who, in return, presented us with three or four horses, which terminated the proceedings of the council. We afterwards understood that our guests thought we gave but little; and it is perhaps true, that the value of their presents was far greater than ours, yet our liberality was fully equal to our means.

The whole population had now deserted their edifices and crowded about us, and, agreeably to our wishes, which were announced in the council, the women brought jerked meat, and the men skin and hair ropes for halters, to trade with us for trinkets; and we were enabled to obtain a sufficient quantity of each, at a very moderate price. The trading being completed, we expected the crowd to diminish, but it seemed rather to augment in magnitude and density, until, becoming a very serious inconvenience, we requested the chiefs to direct their people to retire, which they immediately complied with, but, with the exception of the Shienne chief, were not obeyed. All the Shiennes forthwith left us, in compliance with [44] the peremptory orders of their chief, who seemed to be a man born to command, and to be endowed with a spirit of unconquer-



Kaskaia

Shienne, Chief

Awappaho

able ferocity, and capable of inflicting exemplary punishment upon any one who should dare to disobey his orders. He was tall and graceful, with a highly-ridged aquiline nose, corrugated forehead, mouth with the corners drawn downward, and rather small, but remarkably piercing eye, which, when fixed upon your countenance, appeared strained in the intenseness of its gaze, and to seek rather for the movements of the soul within, than to ascertain the mere lineaments it contemplated. The other chiefs seemed to possess only the dignity of office, without the power of command; the result, probably, of a deficiency of that native energy with which their companion was so pre-eminently endowed. They scarcely dared to reiterate their admonitions to their followers, not to press so closely upon the white people, but to limit their approaches to the line of our baggage. Still our tents were filled, and our persons hemmed in by the ardent and insatiable curiosity of the multitude, of both sexes and of all ages, mounted and on foot. To an observer of mankind, the present scene was abundantly fruitful and interesting. We could not but remark the ease and air of security with which their equestrians preserved their equipoise on the naked backs of their horses, in their evolutions beyond the crowd; nor could we restrain a smile, in the midst of vexatious circumstances, at the appearance of the naked children, mounted on horses, sometimes to the number of three or four on each, carelessly standing erect, or kneeling upon their backs, to catch a glance, over the heads of the intervening multitude, at the singular deportment, costume, and appearance of the white strangers.

In the rear of our tent, a squaw, who had become possessed of a wooden small-toothed comb, was occupied [45] in removing from her head a population as numerous, as

the individuals composing it were robust and well fed. She had placed a skin upon her lap to receive the victims as they fell; and a female companion who sat at her feet alternately crouched the oily vermin between her teeth, and conversed with the most rapid and pleasant loquacity, as she picked them up from the skin before her.

Our attention was now arrested by a phenomenon which soon relieved us from the crowd that pressed upon us. A heavy and extensive cloud of dust was observed in the north, obscuring the horizon, and bounding the range of vision in that direction. It moved rapidly towards us. An animated scene ensued; the Indians fording the river with as much rapidity of movement as they could exert, towards their encampment, horse and foot, the water foaming before them. It soon became obvious that the dust ascended into the atmosphere under the influence of a violent current of air; we therefore employed a few moments of interval in strengthening our feeble tenements to resist the influence of the approaching tempest. Within, they were now so nearly filled with our red brethren, that we wedged ourselves in with some difficulty amongst them. It soon became necessary to exert our strength in holding down our tents and supporting the poles, which bowed and shook violently under the pressure of the blast. Thunder, lightning, rain, and hail succeeded. During this play of the elements, our guests sat in stillness, scarcely articulating a word during the prevalence of the electrical explosions.

Our tents were much admired, and previously to the fall of rain (which exposed their imperfection, in admitting the water, modified into the form of a mist) one of the natives offered to exchange an excellent mule for that in which he was sitting; and as the commonalty could not

distinguish us in their minds [46] from traders, another offered two mules (valued equal to four horses) for a double-barrelled gun; and a third would willingly have bartered a very good horse for an old and almost worn-out camp-kettle, which we could by no means part with, though much in want of horses.

These Indians differ, in many particulars, from those of the Missouri, with whose appearance we had been for some time familiar. Their average stature appeared to us less considerable; and although the general appearance of the countenance was such as we had been accustomed to see, yet their faces have, perhaps, somewhat more latitude, and the Roman nose is obviously less predominant; but still the direction of the eye, the prominence of the cheek bones, the form of the lips, teeth, chin, and retreating forehead, are precisely similar. They have also the same habit of plucking the hair from various parts of the body; but that of the head, in the females, is only suffered to attain to the shoulders, whilst the men permit theirs to grow to its full extent. They even regard long hair as an ornament, and many wear false hair fastened to their own by means of an earthy matter, resembling red clay, and depending in many instances (particularly the young beau) to their knees, in the form of queues, one on each side of the head, variously decorated with ribbon, like slips of red and blue cloth, or coloured skin. Others, and by no means an inconsiderable few, had collected their long hair into several flat masses, of the breadth of two or three fingers, and less than the fifth of an inch in thickness, each one separately annulated with red clay at regular intervals. The elders wore their hair without decoration, flowing loosely about their shoulders, or simply intermixed with slender plaited queues. In

structure and colour it is not distinguished from that of the Missouri Indians, though, in early youth, it is often of a much lighter colour; and a young man, of [47] perhaps fifteen years of age, who visited us to-day, had hair decidedly of a flaxen hue, with a tint of dusky yellow.

Their costume is very simple, that of the female consisting of a leathern petticoat, reaching the calf of the leg, destitute of a seam, and often exposing a well-formed thigh, as the casualties of wind or position influence the artless foldings of the skirt. The leg and foot are often naked, but usually invested by gaiters and mockasins. A kind of sleeveless short gown, composed of a single piece of the same material, loosely clothes the body, hanging upon the shoulders, readily thrown off, without any sense of indelicacy, when suckling their children, or under the influence of a heated atmosphere, displaying loose and pendant mammæ. A few are covered by the more costly attire of coarse red or blue cloth, ornamented with a profusion of blue and white beads: the short gown of this dress has the addition of wide sleeves descending below the elbow; its body is of a square form, with a transverse slit in the upper edge for the head to pass through; around this aperture, and on the upper side of the sleeves, is a continuous stripe, the breadth of the hand, of blue and white beads, tastefully arranged in contrast with each other, and adding considerable weight as well as ornament to this part of the dress. Around the petticoat, and in a line with the knees, is an even row of oblong conic bells, made of sheet copper, each about an inch and a half in length, suspended vertically by short leathern thongs as near to each other as possible, so that when the person is in motion, they strike upon each other, and produce a tinkling sound. The young unmarried females

are more neatly dressed, and seem to participate but little in the laborious occupations, which fall chiefly to the lot of their wedded companions.

The dress of the men is composed of a breech cloth, skin leggings, mockasins, and a bison robe. In [48] warm weather the three latter articles of dress are sometimes thrown aside as superfluous, exposing all the limbs and body to view, and to the direct influence of the most ardent rays of the sun. Such are the habiliments that necessity compels the multitude to adopt; but the opulence of a few has gained for themselves the comfortable as well as ornamental and highly esteemed Spanish blanket from the Mexican traders, and of which we had previously seen two or three in the possession of Pawnee warriors worn as trophies. Another species of garment, in their estimation equally sumptuous with the blanket, is the cloth robe, which is of ample dimensions, simple in form, one half red and the other blue, thrown loosely about the person, and at a little distance, excepting the singular arrangement of colours, resembling a Spanish cloak.

Some have, suspended from the slits of their ears, the highly prized nacre, or pearly fragments of a marine shell, brought probably from the N. W. coast.

The Shienne chief revisited us in the afternoon. He informed us, that one of his young men, who had been sent to ascertain the route which the bison herds had taken, and their present locality, had observed the trail of a large party of men, whom, by pursuing the direction, he had discovered to be Spaniards on their way towards the position we then occupied, where they must very soon arrive. As we were now in a region claimed by the Mexican Spaniards as exclusively their own, and as we had for some days anticipated such an event as highly

probable, we involuntarily reposed implicit confidence in the truth of the intelligence communicated by the chief, who regarded that people as our natural enemies. Nevertheless his story was heard by our little band, as it was proper that it should have been in our situation and in the presence of Indians, with the appearance of absolute apathy. The chief seemed not to have [49] accomplished some object he had in view, and departed evidently displeased. When he was out of hearing, the Indian interpreter, who had become our friend, told us, that the story was entirely false, and was without a doubt the invention of the chief, and designed to expedite the trade for a few additional horses that we were then negotiating.

Mr. Say (accompanied by an interpreter), who made a short visit to the small group of lodges near us, was kindly received, though hooted by the children, and of course snarled and snapped at by the dogs. The skin lodges of these wandering people are very similar to those of the Missouri tribes, but in those to which he was introduced, he experienced the oppression of an almost suffocating heat, certainly many degrees above the temperature of the very sultry exterior atmosphere. A very portly old man, whose features were distinguished by a remarkably wide mouth and lengthened chin, invited him to a small ragged lodge, to see the riches it contained. These consisted of habiliments of red and blue cloth, profusely garnished with blue and white beads, the product of the industry and ingenuity of his squaw, from materials obtained last winter from some white traders, who made their appearance on Red river. The present members of this family were the old man, one wife, and four children, the latter as usual in a state of nudity. The baggage was piled around the lodge, serving for seats and beds; and a

pile of jerked meat near the door served also for a seat, and was occasionally visited by the dirty feet of the children. A boy was amusing himself with that primitive weapon, the sling, of an ordinary form, which he used with considerable dexterity; the effect of which he appeared disposed to try upon the stranger, and was not readily turned from his purpose by a harsh rebuke and menacing gesture.

He was informed, that the party of traders who had last winter ascended Red river to their country, were [50] *Tabbyboos* (a name which they also applied to us, and which appears to be the same word which, according to Lewis and Clarke, in the language of the Snake Indians, means white men; but it was here applied particularly to the Americans). These traders offered various articles, such as coarse cloths, beads, vermilion, kettles, knives, guns, powder, lead, &c. in exchange for horses and mules, bison-robcs, and parchment or parfleche. Such was the anxiety to obtain the merchandize thus displayed before them, that those enterprising warriors, whose stock of horses was but small, crossed the mountains into Mexico, and returned with a plentiful supply of those animals for exchange, captured from the Spanish inhabitants of that country. This illicit trade in horses was conducted so extensively by that party of traders, that he was told of a single Indian who sold them fifty mules, besides a considerable number of horses from his own stock.

At his return to camp he was informed, that an old Indian had been there, who asserted that he never before had seen a white man; and on being permitted to view a part of the body usually covered by the dress, he seemed much surprised at its whiteness.

These Indians seem to hold in exalted estimation the

martial prowess of the Americans. They said that a battle had lately been fought in the country which lay very far down Red river, between a handful of Americans and a great war-party of Spaniards, that the latter were soon routed, retreating in a dastardly manner, like partridges running through the grass. They were at present at war with the Spaniards themselves, and had lately killed many individuals of a party of that nation near the mountains.⁹⁷

In the evening, squaws were brought to our camp; and after we had retired to our tent at night, a brother of the grand chief, Bear Tooth, continued to interrupt our repose with solicitations in favour of a squaw he had brought with him, until he was peremptorily [51] directed to be gone, and the sentinel was ordered to prevent his future intrusion.

The Bear Tooth is the grand chief of the Arrapahoes, and his influence extends over all the tribes of the country in which he roves; he was said to be encamped at no great distance, with the principal body of these nations. He is said to be very favourably disposed towards the white people, and to have afforded protection and a home

⁹⁷ The Spanish-American frontier was, during this whole period, the scene of almost constant friction, and several filibustering expeditions invaded Texas during the first two decades of the century. In 1811 Bernardo Gutierrez, a Mexican refugee, and Augustus Magee, an ex-officer of the United States army, led a force into eastern Texas, seized Nacogdoches, and drove the Spanish troops in confusion across Trinity River. On some such exploit as this — possibly this very one — the Indians doubtless based their story. During the year of Major Long's expedition, another man of the same patronymic (James Long, a Natchez merchant) led another party into Texas, but achieved slight success. See Garrison, *Texas* (Boston, 1903). An article in *Niles' Register* (xix, p. 133), speaking of the Comanche, says: "These Indians consider themselves the most powerful nation in the world, and *next to them*, the *Americas* (as they call the people of the United States). But, since Long's defeat, they rank Spain before America, considering Long *to have the command of all the United States*." — ED.

in his own lodge to a poor and miserable American who had the good fortune to escape from the barbarity and mistaken policy of the Mexican Spaniards, and from the horrors of a Spanish prison, to find an asylum amongst those whom they regard as barbarians, but to whose commiseration his wretchedness seemed to have been a passport.

Friday, 28th. This morning at sunrise we were called from our tents by the cry of Tabbyboo, proceeding from two handsome mounted Arrapahoes, who appeared delighted to see us; they had passed our camp in the night, on their way from the camp of the Bear Tooth, with a message from that chief to our neighbours. In consequence of this information or order, the lodges on both sides of the river were struck at six o'clock, and the whole body of Indians commenced their march up the river, notwithstanding the threatening aspect of the heavens, which portended a storm. We could not but admire the regularity with which the preparations for their journey seemed to be conducted, and the remarkable facility with which the lodges disappeared, and with all their cumbrous and various contents were secured to the backs of the numerous horses and mules. As the long-drawn cavalcade proceeded onwards, a military air was imparted to the whole, at the distance at which we contemplated it, by the activity of the young warriors, with their lances and shields, galloping or racing along the line for caprice or amusement.

[52] The Kiawa chief, and a few attendants, called to make his parting visit; an old man, rather short, inelegantly formed, destitute of any remarkable physiognomical peculiarity, and like other chiefs without any distinction of personal ornament. In common with many of his

tribe, his system was subject to cutaneous eruptions, of which several indications, besides a large ulcer near the angle of the mouth, exhibited the proof. We were soon all driven into our flimsy and almost worn-out tents, which afforded us but a very partial shelter from the fall of a heavy shower of rain from the N. W. Here we obtained some additional information from the chief, who was disposed to be communicative, to augment the considerable mass which we had already collected from other Indians, and particularly from Bijeau, respecting these wandering herds. The chief seemed to take a pleasure in pronouncing to us words of the Kiawa language, and smiled at our awkward attempts to imitate them, whilst we were engaged in committing them to paper. This vocabulary, as well as that of the Kaskaia language, which we had previously obtained from the Calf, had been for some time the objects of our wishes; as Bijeau persuaded us that they were more difficult to acquire than any other language, and that although formerly he resided three years with those nations, he never could understand the meaning of a single word, not even their expression for Frenchman, or tobacco. Nor does this observation, though perhaps unintentionally exaggerating the idea of the abstruse nature of the language, appear absolutely destitute of foundation, since these nations, although constantly associating together, and united under the influence of the Bear Tooth, are yet totally ignorant of each other's language; insomuch that it was no uncommon occurrence to see two individuals of different nations sitting upon the ground, and conversing freely with each other by means of the language of signs. In the art of thus [53] conveying their ideas they were thorough adepts; and their manual display was only

interrupted at remote intervals by a smile, or by the auxiliary of an articulated word of the language of the Crow Indians, which to a very limited extent passes current among them.

These languages abound with sounds strange to our ears, and in the noisy loquacity of some squaws, who held an animated debate near our tents yesterday, we distinguished pre-eminently a sound which may be expressed by the letters koo, koo, koo.

The Shiennes, or Shawhays, who have united their destiny with these wanderers, are a band of seceders from their own nation; and some time since, on the occurrence of a serious dispute with their kindred on Shienne river of the Missouri, flew their country, and placed themselves under the protection of the Bear Tooth.

These nations have been for the three past years wandering on the head waters and tributaries of Red river, having returned to the Arkansa only the day which preceded our first interview with them, on their way to the mountains at the sources of the Platte river. They have no permanent town, but constantly rove, as necessity urges them, in pursuit of the herds of bisons in the vicinity of the sources of the Platte, Arkansa, and Red rivers.

They are habitually at war with all the nations of the Missouri; indeed, martial occurrences in which they were interested with those enemies formed the chief topic of their conversation with our interpreters. They were desirous to know of them the names of particular individuals whom they had met in battle, and whom they described; how many had been present at a particular engagement, and who were killed or wounded. The late battle, which we have before spoken of, with the Loup Pawnees, also occupied their inquiries; they denied that

they were on that occasion aided by the Spaniards, as we understood [54] they had been, but admitted their great numerical superiority, and the loss of many in killed and wounded. Their martial weapons are bows and arrows, lances, war-clubs, tomahawks, scalping-knives, and shields.⁹⁸

Tobacco being very scarce, they do not carry with them a pouch for the convenience of having it always at hand, an article of dress invariably attendant on the Missouri Indian. Bijeau informed us, that the smoking of tobacco was regarded as a pleasure so sacred and important, that the females were accustomed to depart from the interior of a lodge when the men indulged themselves with the pipe. The Shienne chief, in consequence of a vow he had made against using the pipe, abstained from smoking whilst at our council, until he had the good fortune to find a small piece of paper which some one of our party had rejected; with this he rolled up a small quantity of tobacco fragments into the form of a segar, after the manner of the Spaniards, and thus contented himself with infringing the spirit of his vow, whilst he obeyed it to the letter.

⁹⁸ We do not know that any writer has visited these Indians since the expedition of Mr. Bourgmont, Commander of Fort Orleans of the Missouri, which took place in the year 1724. They were then, and have since continued to be, distinguished collectively by the name of Padoucas. Du Pratz informs us, that they were then very numerous, "extending almost two hundred leagues; and they have villages quite close to the Spaniards of New Mexico." And that "from the Padoucas to the Canzes, proceeding always east, we may now safely reckon sixty-five and a half leagues. The river of the Canzes is parallel to this route." From this statement of the course and estimate of the distance to the country of the Padoucas, it is evident, that at this day these Indians do not habitually wander in that direction so near to Missouri as they then did, owing probably to the hostilities of the more martial nations residing on that river.—JAMES.

The rain having ceased, our guest and his attendants took their leave.

These Indians might readily be induced to hunt the beaver, which are so extremely abundant in their country; but as yet, these peltries seem not to have entered amongst the items of their trade.

In the afternoon we struck our tents and continued our journey; we were soon overtaken by a thunder-storm, which poured down upon us a deluge of rain, which continued with partial intermissions during the night.

Saturday, 29th. The sun arose with renewed splendour, and ushered in another sultry day. Two of the horses which had been presented by the chiefs ran off, and were soon observed to rise the bluffs, and disappear; men were despatched in pursuit of them, who, after a long and fatiguing chase, returned about [55] noon unsuccessful. We reconciled ourselves as we might to this privation, and after dining proceeded onward. The alluvial margins of the river are gradually dilating as we descend, and the mosquitoes, which have of late visited our camp but sparingly, are now increasing in number. A fine species of toad (*bufo*)⁹⁹ inhabits this region. It resembles the common toad (*B. musicus* daud.), but

⁹⁹ *Bufo cognatus*.—Fuscous, with cinereous lines; head canaliculate, groove abbreviated before. Body above, dark brownish, papillous, the papillæ and their basal disks black; they are more numerous, prominent, and acute, on the sides and legs; not prominent on the back. A vertebral cinereous vitta, from which an oblique cinereous irregular line is drawn from the vertex to the side behind the anterior feet; another double one from the middle of the back to the posterior thighs. Sides and legs with irregular cinereous lines. Head with a groove, which hardly extends anteriorly to the line of the anterior canthus of the eyes; verrucæ behind the eyes, moderate; superior maxilla emarginate; beneath granulated.

Length from the nose to the cloaca, $3\frac{3}{4}$ inches. A specimen is placed in the Philadelphia museum.—JAMES.

differs in the arrangement of the colours, and in the proportional length of the groove of the head, which in that species extends to the nose; it is destitute of large verrucose prominences intervening between the verrucæ behind the eyes, and of the large irregular black dorsal spots edged with white, observable upon the musicus. In the arrangement of the cinereous lines, it presents a general resemblance to *B. fuscus* saur. as represented on pl. 96. of the *Encycl. Method.* It thus resides in a country almost destitute of timber, where, as well as a variety of the musicus, it is very much exposed to the direct rays of the sun.

[56] CHAPTER X [IV]

Arrapaho War-party — Tabanus — Rattlesnakes — Burrowing Owl — Departure of Bijeau and Ledoux for the Pawnee Villages — Scarcity of Timber — Great Herds of Bisons — Wolves.

SUNDAY, 30th. About sunrise a dense fog intercepted the view of surrounding scenery, which was soon dissipated as we moved on, exhibiting all the variety of partially revealed and unnaturally enlarged objects, so familiar to observers of rural sights. At noon, a beautiful natural grove of cotton-wood, lining a ravine in which was some cool but stagnant water near the bank of the river, invited us to repose during the oppressive mid-day heat. We had hardly stripped our horses of their baggage, and betaken ourselves to our respective occupations, when a voice from the opposite bank of the river warned us of the proximity of Indians, who had been until now unseen. Nine Indians soon appeared, and crossed the river to our camp. They proved to be an Arrapaho war-party of eight men and a squaw, of whom one was a

Kiawa.¹⁰⁰ This party informed us, that they had left the Bear Tooth's party on a tributary of this river, at the distance of about half a day's journey from us, moving upwards. As no apprehension of mischief was entertained from so small a party, they were invited to encamp near us for the remainder of the day; to which, urged by curiosity, and perhaps by the hope of receiving some presents, they readily assented. The squaw busied herself in erecting a little bowery, of a sufficient size to contain herself and her [57] husband, who we afterwards discovered to be a personage of some eminence in their mystic arts. Having supplied our guests with a pipe of some tobacco, we resumed our occupations. Our attention was, however, diverted to the young Kiawa warrior, who had the presumption to seize the Kaskaia horse which was purchased of the Calf Indian, loose him from the stake around which he was grazing, and having the further audacity to lead him near to our tents, proceeded to make a noose in the halter, which he placed over the mouth of the animal, that patiently submitted to his operations. This sudden subjugation of the horse was a subject of more surprise to us than the outrageous attempt of the Indian, as he had hitherto resisted all our endeavours to accomplish the same object, whether conciliatory or forcible. It seemed to corroborate the truth of the observation, that the horse readily distinguishes the native from the white man by his acute sense of smelling. The intention of the Indian to take possession of the horse was now manifest, and one of our party stepped forward and seized the halter near the head of the animal; but the Indian, who held the other extremity of the halter, be-

¹⁰⁰ The Arrapaho, or Rappaho nation, is known to the Minnetarees of the Missouri, by the name of E-tâ-léh, or Bison-path Indians.— JAMES.

trayed no symptoms of fear, or of an intention to relinquish a possession which he had thus partially obtained: he looked sternly at his antagonist, and asserted his right to the horse, inasmuch as he had, he said, formerly owned him, and meant now to repossess him. Supposing that this altercation might eventuate unpleasantly, the remainder of our party stood prepared to repulse any attempt which the other Indians might make to support the claim of their companion, whilst Bijeau, with a manly decision, advanced and forcibly jerked the halter out of the hands of the Indian. His companions sat enjoying themselves with their pipe, and did not appear disposed to take any part in the transaction. He fortunately made no further exertions to obtain possession of the horse, but immediately mounted his own horse, and [58] rode off in high dudgeon, saying he would remain no longer with us for fear we would kill him. Contrary to our expectations, the other Indians loudly condemned his conduct; they said that the horse had never been his property, though they all knew the animal well; that the Kiawa was a very bad Indian, and would either assemble a party to return against us, or he would return himself that night to accomplish his purpose. "If he does come," said they, "you need not give yourself any trouble; for we will watch for him, and kill him ourselves."

When the excitement of this incident had subsided, we felt desirous to examine the contents of the medicine bag of the man of mysteries, who was at once a magician and the leader of the party. At our solicitation he readily opened his sacred depository, and displayed its contents on a skin before us, whilst he politely proceeded to expatiate on their powers and virtues in the occult art, as well as their physical efficacy. They consisted of various roots, seeds, pappus, and powders, both active and inert, as respects

their action on the human system, carefully enveloped in skins, leaves, &c., some of which, to his credulous faith, were invested with supernatural powers. Similar qualities were also attributed to some animal products with which these were accompanied, such as claws of birds, beaks, feathers, and hair. But the object that more particularly attracted our attention was the intoxicating bean, as it has been called, of which he possessed upwards of a pint. Julien recognized it immediately. He informed us, that it is in such high request amongst the Oto Indians, that a horse has been exchanged for eight or ten of them. In that nation the intoxicating bean is only used by a particular society, who at their nocturnal orgies make a decoction of the bean, and with much pomp and ceremony administer the delightful beverage to each member. The initiation fees of this society are rather extravagant, and the [59] proceeds are devoted principally to the purchase of the bean. That old sensualist, Shongotonga (big horse), is the principal or presiding member of the society, and the bean is obtained in some circuitous manner from the Pawnee Piquas of Red river, who probably receive it from the Mexican Indians. With some few trinkets of little value, we purchased the principal portion of our medicine man's store of beans; they are of an ovate form, and of a light red, sometimes yellowish colour, with a rather deeply impressed oval cicatrix, and larger than a common bean. A small number of a differently coloured and rather larger bean was intermixed with them.¹⁰¹

The squaw had in her possession a quantity of small

¹⁰¹ The intoxicating bean is the fruit of a variety of mesquite tree (*prosopis glandulosa*), which is common in the semi-arid districts of the Southwest. It bears a pod similar to that of the locust, to which it is related, containing eight to twelve beans. The Indians use the bean as food for themselves and their horses, as well as in the preparation of an alcoholic drink.—ED.

flat blackish cakes, which on tasting we found very palatable. Having purchased some of them, we ascertained that they were composed of the wild cherry, of which both pulp and stone were pounded together, until the latter is broken into fragments, then mixed with grease, and dried in the sun.

Not choosing to rely implicitly on the good faith of the strangers, however emphatically expressed, the sentinel was directed to look well to them, and also to keep the horse in question constantly in view during the night, and to alarm us upon the occurrence of any suspicious movements.

All, however, remained quiet during the night, and in the morning, Monday 31st, we resumed our journey. The river now considerably dilates, and is studded with a number of small islands, but the timber that skirts its stream is still less abundant, and more scattered. The alluvial formation affords a moderate growth of grass, but the general surface of the country is flat, sterile, and uninteresting. The day was cloudy with an E. S. E. wind, which at night brought some rain.

Tuesday, August 1st. Set out late; and after having travelled about two miles, a horseman armed with a spear was seen on the bluffs, at the distance [60] of about a quarter of a mile, who, after gazing at our line for a short time, disappeared. Our Pawnee interpreters being at a considerable distance in the rear, Julien was sent forward to reconnoitre. He mounted the bluff to the general level of the country, and abruptly halted his horse within our view, as if appearances before him rendered precaution necessary. The Indian again came in sight, and in full career rushed towards him, passed him, and wheeling, halted his horse. Many other Indians then appeared,

who surrounded Julien, and after a short and hurried conference, they dashed at full speed down the steep bank of the bluff to meet us, the whole in concert singing the scalp song. So adventurous and heedless was this movement, that one of the horses stumbled and fell with great violence, and rolled to the bottom. His rider, no doubt prepared for such an accident, threw himself in the instant from his seat, so as to fall in the most favourable manner, and avoid the danger of being crushed by the horse; not the slightest attention was bestowed upon him by his companions, and indeed the disaster, however serious it first appeared, hardly interrupted his song. His horse being but little injured, he almost immediately regained his saddle, and came on but little in the rear of the others, who now had mingled with our party, shaking us by the hand with a kind of earnest familiarity not the most agreeable. We needed no additional information to convince us that this was a war-party; their appearance was a sufficient evidence of the nature of their occupation. One of us asked an individual if they were Kiawas, and was answered in the affirmative; he asked a second, if they were Kaskaias, and a third, if they were Arrapahoes, who both also answered affirmatively. This conduct, added to their general deportment, served to excite our suspicions and redouble our vigilance. Two or three other little detached squads were now seen to approach, also singing the scalp [61] song. Our interpreters having joined us, it was proposed that we should avail ourselves of the shade of a large tree which stood near the river, to sit down and smoke with them. They reared their spears against the tree with apparent carelessness and indifference, and took their seats in the form of a semi-circle on the ground. Having staked our horses in the

rear, and stationed the men to protect them and the baggage, we seated ourselves, and circulated the pipe as usual. But as the party opposed to us was nearly quadruple our number, we did not choose to follow their example in relinquishing our arms, but grasped them securely in our hands, and retained a cautious attitude.

Bijeau ascertained that they were a Shienne war-party, on their return from an expedition against the Pawnee Loups. They had killed one squaw, whose scalp was suspended to the spear of the partizan or leader of the party, the handle of which was decorated with strips of red and white cloth, beads, and tail plumes of the war-eagle. He also informed us, that he recognized several of them, particularly a chief who sat next to him, whose person himself and party had formerly seized upon, and detained as a hostage for the recovery of some horses that had been stolen. The chief, however, did not now betray any symptoms of a disposition to retaliate for that act, though, without doubt, he regarded us as in his power. Our interpreter readily conversed with them through the medium of a Crow prisoner, whose language he partially understood.

The partizan who killed the victim of this excursion, and two others, one of whom first struck the dead body, and the other who took off the scalp, were painted deep black with charcoal, and almost the entire body being exposed, rendered the effect more impressive. One of the latter, a tall athletic figure, remained standing behind us, and refused to smoke when the pipe was offered to him, alleging [62] as an excuse, the obligation of a vow he had made against the use of tobacco, on the demise of his late father.

We now drew upon our little store of merchandize, for

two or three twists of tobacco and a few knives, which, being laid before the partizan, excited from his politeness the return of thanks. He was of an ordinary stature, and had exceeded the middle age; his face much pitted with the small pox, his nostrils distended by a habitual muscular action, which at the same time elevated the skin of the forehead, and forcibly drew downward that part which corresponds with the inner extremity of the eyebrows, into a kind of gloomy frown. This singular expression of countenance, added to the contrast of the whites of his large eyes, with the black colour with which his features and body were overspread, seemed to indicate the operations of a mind hardened to the commission of the most outrageous actions. He however behaved with much propriety. During these scenes Mr. Say succeeded in ascertaining and recording many of the words of the language, from an Indian who had seated himself behind him.

The party was armed with spears, bows, and arrows, war-clubs, tomahawks, scalping knives, &c.

As many of them now began to ask for tobacco and for paper, to include fragments of it in the form of segars for smoking, and not finding it convenient to gratify them in this respect, we thought it prudent to withdraw, lest a quarrel might ensue. We therefore mounted our horses without molestation, having been detained an hour and a half, and proceeded on our journey, with the agreeable reflection that our deportment had not warranted a supposition that we were conscious of any inferiority in force, but rather that it was dictated by a high courtesy.

A few bisons varied the landscape, which is fatiguing to the eye by its sameness; and after travelling twenty-

three miles, we encamped for the night. A [63] large green-headed fly (tabanus) has made its appearance in great numbers, which exceedingly worries our already sufficiently miserable horses. Their range seems to be in a great measure restricted to the luxuriant bottoms, and, like the zimb of Egypt, they appear to roam but little beyond their proper boundaries. If we traversed these fertile portions of the low grounds, which yield a profuse growth of grasses, we were sure of being attacked by them, seizing upon the necks of the horses, and dyeing them with blood; but the refuge of the more elevated surface, and arid barren soil, afforded speedy relief, by banishing our assailants.

Scarcely were our tents pitched, when a thunder-storm, which had been approaching with a strong west wind, burst over us, but was of short continuance.

Wednesday, 2d. After moving a few miles, we halted, and sent out hunters to kill a bison.¹⁰² The confluent rattlesnakes are very abundant, particularly in and about the prairie dog villages; but neither their appearance nor the sound of their rattle excites the attention of our horses; the sagacity of Mr. Seymour's mule, however, seems superior to that of his quadruped companions. He appears to be perfectly aware of the dangerous qualities of these reptiles, and when he perceives one of them

¹⁰² Amongst the herds of these animals, we frequently saw flocks of the cow bunting (*emberiza pecora*). The manners of this bird, in some respects, are very similar to those of the *Tanagra erythroryncha* of Lord Stanley, in Salt's travels; flying, and alighting in considerable numbers on the backs of the bisons, which, from their submission to the pressure of numbers of them, seem to appreciate the services they render, by scratching and divesting them of vermin. This bird is here, as well as in the settlements, remarkably fearless. They will suffer us to pass very near to them, and one of them to-day, alighted repeatedly on the ground near our horses' feet: he would fly along our line, and balance himself on his wings, to gratify his curiosity, within striking distance of a whip.—JAMES.

near him, he springs so abruptly to one side, as to endanger his rider. Fortunately none of us have been bitten by them during our pedestrian rambles.

A recent trail of some war-party was this morning observed, leading across the river. The hunters returned unsuccessful, and we proceeded on until sunset to a distance of twenty miles. Great numbers of bisons were seen this afternoon, and some antelopes.

Thursday, 3d. The morning was clear and fine, with a temperature of 57 degrees. The antelopes become more numerous as we proceed; one of them trotted up so near to our line as to fall a victim to his curiosity. A considerable number of the coquimbo, [64] or burrowing owl, occurred in a prairie dog village of limited extent. They readily permitted the hunter to approach within gunshot, and we were successful in obtaining a specimen of the bird in good order. Upon examining the several burrows upon which the owls had been observed to be perched, we remarked in them a different aspect from those on which the prairie dog had appeared; they were often in a ruined condition, the sides in some instances fallen in, sometimes seamed and grooved by the action of the water in its course from the surface to the interior, and in other respects presenting a deserted aspect, and, like dilapidated monuments of human art, were the fit abode of serpents, lizards, and owls. The burrows on which we saw the prairie dog were, on the contrary, neat, always in repair, and evinced the operations of industrious tenants. This contrast, added to the form and magnitude of the dwelling, leads us to the belief that the coquimbo owl does not, in this region, excavate its own burrow, as it is said to do in South America and in the West India islands; but rather that it avails itself of the abandoned

burrows of this species of marmot, for the purposes of nidification and shelter.

On our arrival at our mid-day resting-place, on the bank of the Arkansa, the water of the river was potable, but in a few minutes it became surcharged with earthy and stercoraceous matters, from the sweepings of the prairie by the late rain, to such a degree that our horses would hardly drink it. There remained however, a short distance below, a small stream of beautifully pellucid water, which rapidly filtrated through a fortuitous embankment of sand and pebbles, and strongly contrasted with the flood with which it was soon again to intermingle. Our travelled distance to-day was twenty-three miles.

Friday, 4th. Proceeded on about six miles, when we forded a small portion of the river to an island which supported a growth of low and distant trees. [65] Here the tents were pitched, with the intention of halting a day or two, to recruit our miserable horses, and to supply ourselves with a store of jerked meat. The hunters were accordingly sent to the opposite side of the river, and in a short time they succeeded in killing four fat cows, which gave employment to all the men in preparing the meat for transportation.

A brisk southerly wind prevailed, that rendered the atmosphere less oppressive than usual.

Saturday, 5th. The wind ceased during the night, and the lowing of the thousands of bisons that surrounded us in every direction, reached us in one continual roar. This harsh and guttural noise, intermediate between the bellowing of the domestic bull and the grunting of the hog, was varied by the shrill bark and scream of the jackals, and the howling of the white wolves (*canis mexicanus* var.), which were also abundant. These wild and dis-

sonant sounds were associated with the idea of the barren and inhospitable wastes, in the midst of which we were then reposing, and vividly reminded us of our remoteness from the comforts of civilised society. Completed the operation of jerking the meat, of which we had prepared two packs sufficient in weight to constitute a load for one of our horses, and disposed every thing for an early departure to-morrow.

Sunday, 6th. An unusual number of wolves and jackals hovered around our encampment of last night, attracted probably by the smell of the meat. Resumed our journey on a fine cloudless morning, with a strong and highly agreeable breeze from the south. We were now traversing the great bend of the river.¹⁰³ Travelled twenty-three miles to-day, and shot two bulls, which were now poor, and their flesh of a disagreeable rank taste and scarcely eatable; we therefore contented ourselves with the tongues and marrow-bones.

Monday, 7th. The mercurial column of the thermometer at sunrise, for a few days past, has ranged [66] between 42 and 67 degrees, and the atmosphere is serene and dry. The services of the two French Pawnee interpreters, Bijeau and Ledoux, had terminated, agreeably to their contract, at Purgatory Creek; but having been highly serviceable to us on our route, it became desirable, particularly on the departure of our companions for Red river, that they should accompany us still farther, until we should have passed beyond the great Indian war-path,

¹⁰³ This is the first notice of any of the natural features along the route since the division of the expedition two weeks previous, and two hundred and fifty miles up stream. The Great Bend of the Arkansas begins in Ford County, Kansas, and culminates in Barton County. The chord of this great arc is nearly a hundred and twenty-five miles long. Above the bend the country north of the river is flat, while to the south it is hilly, causing the deflection of the stream toward the northeast.—ED.

here so widely outspread. This they readily consented to, as they regarded a journey from that point to their home, at the Pawnee villages, as somewhat too hazardous to be prudently attempted by only two individuals, however considerable their qualifications, and intimate their familiarity with the manners of those whom they would probably meet.

But as we now supposed ourselves to have almost reached the boundary of this region, and they again expressed their anxiety to return to their village, in order to prepare for their autumnal hunt, we no longer attempted to induce their further delay. They departed after breakfast, on a pathless journey of about three hundred miles, the supposed distance from this point to the Pawnee villages of the Platte, apparently well pleased with the treatment they had received, and expressing a desire again to accompany us, should we again ascend the Missouri. We cannot take leave of them, without expressing our entire approbation of their conduct and deportment, during our arduous journey; Bijeau, particularly, was faithful, active, industrious, and communicative. Besides the duties of guide and interpreter, he occasionally and frequently volunteered his services as hunter, butcher, cook, veterinarian, &c., and pointed out various little services, tending to our comfort and security, which he performed with pleasure and alacrity, and which no other than one long habituated to this mode of life would have devised. During leisure intervals, he had communicated an historical narrative of his life and [67] adventures, more particularly in as far as they were relative to the country which we have been exploring. He particularized the adventures of Choteau and Demun's hunting and trading party; their success in beaver hunt-

ing, the considerable quantity of merchandize they took with them, their adventures with the natives, and the singular circumstances attendant on their capture by the Mexican Spaniards, and the transfer of the merchandize to Santa Fé, without however venturing to express any conjectures relative to the latter transaction.¹⁰⁴ Much still more important information was derived from him concerning the manners and habits of these mountain Indians, their history, affinities, and migrations.

A copious vocabulary of words of the Pawnee language was obtained from Ledoux, together with an account of the manners and habits of that nation. All these, however, composed a part of the manuscripts of Mr. Say, that were subsequently carried off by deserters from our camp.

Travelled this day twenty-seven miles. The soil is becoming in many districts more exclusively sandy; the finer particles of which, driven by the wind, have formed numerous large hillocks on the opposite side of the river, precisely resembling those which are accumulated on our sea-coast. On the northern side, or that which we are traversing, the prairie still offers its unvaried flatness and cheerless barrenness, so that during a portion of the day's journey not a solitary bush, even on the river bank, relieved the monotonous scene before us.

Tuesday, 8th. Proceeded early, and at the distance of twelve miles, crossed a creek of clear running water, called by Bijeau *Demun's Creek*,¹⁰⁵ from the circumstance of that hunter losing there a fine horse. At a considerable

¹⁰⁴ See preceding volume, note 134.—ED.

¹⁰⁵ "Demun's Creek" is Pawnee River, flowing eastward from Finney County and emptying into the Arkansas at the present town of Larned, Pawnee County, on the west side of the Great Bend. Eight miles above its mouth is the site of Fort Larned, established in 1859.—ED.

distance above, its stream was slightly fringed with timber, but at our crossing place, it was like the neighbouring part of the river to which it contributed, entirely destitute of trees. Our journey [68] this day was a distance of $24\frac{1}{2}$ miles; towards evening we crossed another creek,¹⁰⁶ over which, being much backed up by the river, we experienced some difficulty in effecting a passage, and were obliged, with this view, to ascend its stream some distance. It was moderately timbered, and amongst other trees we observed the elm and some plum trees, bearing fruit nearly ripe.

Wednesday, 9th. During these few days past, the bisons have occurred in vast and almost continuous herds, and in such infinite numbers as seemed to indicate the great bend of the Arkansa as their chief and general rendezvous. As we pass along, they run in an almost uninterrupted line before us. The course of our line being parallel to that of the Arkansa, when we are travelling at the distance of a mile or two from the river, great herds of these animals were included between us and it; as the prevailing wind blew very obliquely from our left towards the river, it informed them of our presence by the scent which it conveyed. As soon as the odour reached even the farthest animal, though at the distance of two miles on our right, and perhaps half a mile in our rear, he betrayed the utmost alarm, would start into a full bounding run to pass before us to the bluffs, and as he turned round the head of our line, he would strain every muscle to accelerate his motion. This constant procession of bulls, cows, and calves of various sizes, grew so familiar to us at length, as no longer to divert our view from the contemplation of other objects, and from the examination

¹⁰⁶ Ash Creek, Pawnee County.—Ed.

of the comparatively more minute, but certainly not less wonderful works of nature. The white wolves and jackals, more intelligent than their associates, judging by the eye of the proximity of danger, as well as by their exquisite sense of smelling, either dashed over the river, or unhesitatingly crossed our scent in the rear, and at an easy pace, or dog-trot, chose the shortest route to the bluffs.

[69] The soil of the afternoon journey was a deep fine white sand, which rendered the travelling very laborious, under the debilitating influence of an extreme temperature of 94 degrees of Fahrenheit's scale, and affected the sight, by the great glare of light which it so freely reflected. The chief produce of these tracts of unmixed sand is the sunflower, often the dense and almost exclusive occupant. The evening encampment was formed at the junction of a small tributary with the river, at a distance of about twenty-four miles from the last-mentioned creek.¹⁰⁷ The very trifling quantity of timber supported by the immediate bank of the river in this region, is almost exclusively the cotton-wood; we are therefore gratified to observe on this creek, besides the elm, the walnut, mulberry, and ash, which we hail with a hearty welcome, as the harbingers of a more productive territory.

¹⁰⁷ At the culmination of the bend is the mouth of Walnut Creek, which is a large stream flowing east from Lane, across Ness, Rush, and Barton counties, and reaching the Arkansas four miles below the town of Great Bend, seat of Barton County. A small tributary of Walnut Creek, called Little Walnut, debouches four miles from the Arkansas; possibly the party confused the two streams.—ED.

[70] CHAPTER XI [V]

Termination of the Great Bend of the Arkansa — Ietan War-party — Little Arkansa — Red River Fork — Little Neosho and Little Verdigrise Creeks.

THURSDAY, 10th. The great bend of the Arkansa terminates here;¹⁰⁸ and as our horses have fed insufficiently for several days past, we lay by for the day to give them an opportunity of recruiting themselves. A S.S.E. wind prevailed, and at noon exerted a considerable force; the extreme degree of heat was 96 degrees. The hunters brought in a deer and bison.

Friday, 11th. Left the encampment at the confluence of the creek and proceeded onwards. The sandy soil and growth of sunflowers still continue on the river bottoms, and the surface of the opposite bank still swells into occasional hillocks of naked sand. The rice bird (*emberiza oryzivora*, L.) was feeding on the seeds of the sunflower, and the bald eagle was seen sailing high in the air.

We have hitherto generally been able to procure a sufficient supply of small drift-wood for our culinary purposes, but at this noon-day halting-place we were

¹⁰⁸ At this point Pike reached the Arkansas in October, 1806, on his way to the Rocky Mountains from the Pawnee village on Republican River. Here, also, the Santa Fé trail reached the Arkansas. From Independence and Kansas City the trail followed the divide between the Arkansas and Kansas, crossing the headwaters of the tributaries of the former. Above the Great Bend, the main route followed the river to Bent's Fort, where it forked as already described (see *ante*, note 43). A branch of the trail crossed the river in Gray County, Kansas, and traversed the semi-desert region to the southward, to the upper Cimarron; this branch was known as the Cimarron route. The use of the Santa Fé trail dates from time immemorial, but for purposes of trade was long precarious. It was of considerable commercial importance from the early twenties to the age of railroad building; in some years the value of the goods carried amounted to nearly half a million dollars. See volumes xix and xx of our series.—ED.

obliged to despatch a man across the river to collect enough to kindle a fire. From our evening encampment not a tree was within the range of sight.

This day was extremely warm, the mercury at three o'clock indicating 96 degrees, a temperature not decreased by a nimbus in the west, pouring rain, with some thunder. In the evening, silent lightning played beautifully amongst the mingled cirrostratus and cumulus clouds with which the heavens became overcast. In the afternoon, we passed the termination of the sand-hills of the opposite shore. A fine male [71] antelope was shot by Lieut. Swift, and a skunk was also the game of the day. Distance, twenty-five miles.

Saturday, 12th. Passed over a very wide bottom, of which the soil, when not too sandy, produces a most luxuriant growth of grasses and other plants; but the river is still in a great measure destitute of trees, of which we passed but three during the morning's ride, and not a bush over the height of about two and a half feet, being a few willows and barren plum bushes. We were again gratified with the appearance of the prairie fowl running nimbly before us through the grass, the first we have seen since leaving the Platte. The bisons have now very much diminished in number; we passed, unheeded, within a few yards of a young bull, whose glazed eye and panting respiration showed the operation of some malady; and it was curious to observe, that though he stood erect and firmly on his legs, the wolves, which fled on our approach, acquainted with his defenceless condition, surrounded him in considerable numbers, awaiting his dissolution, and probably watching their opportunity to accelerate it.

The afternoon was calm, and the mercury, at its

greatest elevation, stood at 99 degrees. Soon after our departure from our resting-place of noon, we observed a large herd of bisons on our left, running with their utmost rapidity towards us, from the distant bluffs. This was a sufficient warning to put us on our guard against another unwelcome war-party. Looking attentively over the surface of the country in that direction, a mounted Indian was observed to occupy an elevated swell of the surface, at the distance of a mile from us. Our peace-flag was, as usual, immediately displayed, to let him know that we were white people, and to induce him to come to us, whilst we halted to wait for him. Assured by this pacific display, he approached a short distance, but again halted, as if doubting our intentions. Julien was then sent forward towards him bearing the flag, to [72] assure him of our friendship. The Indian now advanced, but with much caution, and obliquely, from one side to the other, as if beating against the wind. Another Indian was now observed advancing rapidly, who joined his companion. After some communication, by means of signs, with Julien, to ascertain who we were, they approached within gun-shot of us, and halting, desired to shake hands with our chief; after this ceremony they rode to an elevated ground, in order to give information to their party, which, during this short interview, we had discovered at a long distance towards the bluffs, drawn up in line, in a conspicuous situation. One of the horse-men halted whilst his companion rode transversely twice between him and the party. This telegraphic signal was immediately understood by the party, that consequently came on towards us. But their movement was so tardy, that it required the exertion of the greater part of our stock of patience to wait their coming, under the arduous

of the heated rays of the sun, to which we were exposed. They seemed peaceably disposed, and desired to accompany us to the river bank, in order to smoke with us; but such was the scarcity of timber, that we were unable to avail ourselves of the shade of a single tree.

We now ascertained that they were an Ietan or Comanch¹⁰⁹ (a band of the Snake Indians) war-party, thirty-five in number, of whom five were squaws. They had marched to attack the Osages, but were surprised in their camp of night before last, by a party of unknown Indians. In the skirmish that ensued, they lost three men, and had six wounded. They however escaped under cover of the darkness, with the further loss of fifty-six horses, and all their clothing, which were captured by the enemy.¹¹⁰ They were indeed in a naked condition, being destitute of robes, leggings, and mockasins; with nothing to cover their bodies at night, or to protect them from the influence of the sun during the day. The squaws, however, had [73] managed to retain their clothing, and one of the warriors had preserved an article of dress, resembling a coat, half red and half blue, ornamented with beads on the sleeves and shoulders. The usual decoration of beads about the neck and in the

¹⁰⁹ The Comanche (a word of Spanish origin, but of unknown meaning) were of Shoshoni stock, and roamed a vast territory extending from western Texas and Kansas to the foot of the mountains. They were fierce and predatory, and superb horsemen. Notwithstanding bloody wars and the ravages of small-pox, the tribe numbered probably about ten thousand at the middle of the nineteenth century. A remnant of about fourteen hundred of these tribesmen now lives on the Kiowa reservation, in Oklahoma.—ED.

¹¹⁰ We have since learned, from Major O'Fallon, that *Ietan*, the distinguished Oto partizan, had informed him, within a few days of this date, that he had just then returned from a war excursion in company with a small party of Otoes that he led. And the narration of his adventures satisfactorily proved, that it was he and his party that reduced the Ietan war-party to the condition in which they presented themselves to us.—JAMES.

hair and ears were preserved, and one warrior only was painted with vermilion. The hair of several was matted into flat braids with red clay, and one individual had seven or eight pieces of the pearl shell suspended from his ears, so highly valued by these Indians. In every particular of form and feature, they were undistinguishable from the Kiawas, Kaskaias, and Arrapahoes. Much attention was devoted to the wounded, who were each accommodated with a horse, of which animals eight had been fortunately retained. These objects of sympathy were assisted in alighting from their horses with great tenderness, particularly one of them, who was shot through the body. Another of them, who was one of the two mounted spies that first approached us, had lost his brother in the late battle; and to prove the sincerity of his grief for his loss, he had cut more than one hundred parallel transverse lines on his arms and thighs, of the length of from three to four inches, deep enough to draw blood, and so close to each other that the width of the finger could not be interposed between any two of them.

They were armed with bows and arrows, lances and shields, and thirteen guns, but by far the greater number carried lances. They begged stoutly for various articles, particularly clothing; and it was found necessary to separate from them a few feet into a distinct body, in order to be prepared to act together in case of necessity. One of us, however, occupied with the appearance of these Indians, still remained amongst them, until one of them attempted to seize his gun, when a slight scuffle ensued, which he terminated by violently wresting the piece from the grasp of the Indian, and warily retreating from the midst of them.

[74] All being seated, the pipe was passed round to a

few principal persons who sat directly in front of us. Some presents were likewise laid before the partizan, consisting of a blanket, a skin to make mockasins of, a dozen knives, and five twists of tobacco; and though some of them complained aloud, and with a violent shivering gesticulation, of the cold they suffered during the night, such was the state of our stores, both public and private, that it was not thought prudent further to enlarge our bounty.

One of our number, who was earnestly occupied in endeavouring to obtain a few words of their language, but who succeeded in recording but four, heard one of them, whilst in conversation with the partizan, terminate a remark with a word or phrase so exactly similar in sound to the words *How is it*, that he almost involuntarily repeated them aloud. The speaker seemed pleased with this, and believing, from the exact similarity of the sounds, that he understood the language, immediately directed his discourse to him, but was answered only by signs denoting ignorance of the language. Their words seem less harsh, more harmonious, and easier of acquisition, than those of their neighbours.

Whilst thus occupied, one of the soldiers who were behind us called our attention to an Indian who had the effrontery to seize the Kaskaia horse by the halter, and, as in a former instance, was making a noose to pass over his head; this procedure was pointed out to the partizan, who taking no notice of it, the fellow was ordered, in a peremptory tone of voice and unequivocal manner, to desist, which he reluctantly complied with. Thus this horse is immediately distinguished and recognized by all the parties we have met with since he has been with us.

We had remained about an hour with this party, when,

in consequence of this conduct, of their importunateness, and some incipient symptoms of disorder [75] amongst them, we judged it prudent to leave them, in order to avoid a quarrel. We therefore mounted our horses, notwithstanding the earnest solicitations of these Indians that we would pass the night with them, probably anticipating another night attack from some unseen enemy: but hardly had we proceeded an hundred yards, when Julien's voice called our attention to the precarious situation in which he was placed. He had been by an accident detained in the rear, and being separated a short distance from the party, he was now entirely surrounded by the Indians, who appeared determined to strip him of every thing, and by pulling at his blanket, bridle, &c. they had nearly unhorsed him. Several of us, of course, at this critical juncture turned our horses to assist him, and a soldier who was nearest prepared his rifle to begin the onset. Observing our attitude, many of the Indians were in a moment prepared for battle, by placing their arrows across their bows. And a skirmish would no doubt have ensued, had not the partizan, observing our determination, and influenced perhaps by gratitude for the presents he had received, called off his men from Julien, and permitted us, without any further futile molestation, to proceed on our way.

In consequence of the desperate situation of this party, we could not entertain a doubt that they would attempt to capture our horses during the night, and to appropriate to themselves our personal equipments. We therefore continued our movement until a later hour than usual; and after a day's journey of twenty-two miles, during which we saw but three trees, we encamped on a selected posi-

tion, and made the best arrangements in our power to repulse a night attack. The horses were staked as near to each other and to ourselves as possible; the packs were arranged in a semicircular line of defence, and each man reposed on his private baggage; the guard was doubled, and we remained wakeful during the [76] night. No alarm, however, occurred; and in the morning,

Sunday 13th, set out early. Our way led over a luxuriant bottom of from three to twelve miles in breadth, producing a luxuriant growth of grasses, now glittering with drops of collected dew; crossed a creek which is destitute of timber, as far as the eye can trace its course. The depth of the water being to all appearance considerable, it became necessary to seek a fording-place, which was found about a mile above its confluence. It was here knee-deep, flowing with a moderate current over a bed of sand and gravel, the surface of the water being depressed only about four feet below the general level.¹¹¹ About an hundred yards beyond its confluence, we observed a canal of water backed up from the river, which, from a little distance, gave a double appearance to the creek. We remained here until a large elk, which had been shot, was cut up, and the meat packed upon the horses. At our mid-day resting-place were a few trees, and some elevated sand-hills, but as the situation was not an eligible one for the protection of the horses from Indian depredation, we moved a few miles further, and encamped, as usual, on the bank of the river. The day had been very

¹¹¹ Cow Creek, the largest tributary of the Arkansas between Walnut Creek and the Little Arkansas. It flows from Barton County southeast across Rice County; Hutchinson, seat of Reno County, is at its confluence with the river. The Santa Fé trail crossed the headwaters of several of its tributaries not far from the Great Bend.—ED.

sultry, with an extreme temperature of 95 degrees, and the evening was accompanied by a display of lightning in the north-western horizon.

The bisons are yet numerous, and the white wolves also abundant; packs of the latter are still heard to howl about our camp in the night, thus responding to the harsh bellowing or grunting of the bulls. Our dogs, that formerly took part in this wild and savage concert, by barking fiercely in return, no longer rouse us from our sleep by noticing it.

Monday, 14th. A slight dew had fallen; the wind was S.S.E., nearly calm; and our morning's journey was arduous, in consequence of the great heat of the atmosphere. Our dogs, these two or three days past, [77] had evidently followed us with difficulty. Cæsar, a fine mastiff, and the larger of the two, this morning trotted heavily forwards, and threw himself down directly before the first horse in the line; the rider turned his horse aside, to avoid doing injury to the dog; but had he noticed the urgency of this eloquent appeal of the animal for a halt, it would not have passed unregarded. The dog, finding this attempt to draw attention to his sufferings unavailing, threw himself successively before two or three other horses, but still failed to excite the attention he solicited, until a soldier in the rear observed that his respiration was excessively laborious, and his tongue to a great length depended from his widely extended mouth. He therefore took the dog upon his horse before him, intending to bathe him in the river, which, however, being at the distance of half a mile, the poor exhausted animal expired in his arms before he reached it. To travellers in such a country, any domesticated animal, however abject, becomes an acceptable companion; and our dogs, besides

their real usefulness as guards at night, drew our attention in various ways during the day, and became gradually so endeared to us, that the loss of Cæsar was felt as a real evil.

The afternoon continued sultry, the extreme heat being 97 degrees. Towards evening a brisk N. E. wind appeared to proceed from a nimbus which was pouring rain in that direction, and produced so instantaneous and great a change in the atmospheric temperature, that we were obliged to button up to the chin; but it refreshed and revived us all. As we were now approaching a well-wooded creek, we hoped soon to assuage our impatient thirst, but great was the mortification, upon arriving at the naked bank, to see a dry bed of gravel of at least fifty yards in breadth. Crossing this inhospitable tract, which appears to be occasionally deluged with water, with the intention of passing down the opposite bank to [78] the river, we were agreeably surprised to discover a fine limpid stream of cool flowing water, meandering through a dense growth of trees and bushes, which had before concealed it from view. Here we remarked the honey locust and button-wood (*platanus occidentalis*), though the principal growth was cotton-wood, elm, and ash. This stream of water, we believe, is known to a few hunters, who have had an opportunity to visit it, by the name of *Little Arkansa*.¹¹²

The distance of the day's journey was twenty-three miles, during which but a single prairie dog village was seen, and proved to be the last one that occurred on the expedition. Partridges and prairie fowls were numerous.

¹¹² The chief branch of the Little Arkansas heads near the northern line of Rice County, traverses the northeast corner of Reno County, and joins several smaller creeks in Harvey County. Thence its course is almost south; Wichita, Sedgwick County, is at its mouth.—ED.

Tuesday, 15th. Much lightning occurred during the night, pervading the eastern heavens nearly from N. to S. At a distance of a mile from encampment, we crossed a timbered ravine, and further on, a small creek; when, upon looking back on our right, we saw the appearance of an Indian village situated near the confluence of the Little Arkansa with the river. Inspired with hope, we turned towards the spot; but on arriving there, it proved to be a large hunting camp, which had probably been occupied during the preceding season. It exhibited a more permanent aspect than three others that occurred on our route of the three past days; much bark covered the boweries; and a few pumpkins, water-melons, and some maize, the seeds of which had fallen from unknown hands, were fortuitously growing as well within as without the rude frail tenements. Of the maize, we collected enough to furnish out a very slight but extremely grateful repast, and the water-melons were eaten in their unripe state.

Resuming our ride, we crossed three branches of a creek,¹¹³ in one of which two of the horses entered in a part not fordable, and as the banks were steep and miry, it was with much exertion and delay that they [79] were recovered. Oak and walnut trees abound upon this creek, besides elm, ash, and locust. A king-fisher (*alcedo alcyon*) was also seen. The extreme heat was rather more intense than that of the preceding day, the mercurial column standing for a time at $97\frac{1}{2}$ degrees. The bluffs, hitherto more or less remote from the bed of the river, now approach it so closely as to render it necessary to pursue our course over them. On ascending upon the elevated prairie, we observed that it had assumed a

¹¹³ Probably Chisholm's Creek, a small Sedgwick County stream.—ED.

different appearance, in point of fertility, from that which we had been familiar with nearer to the mountains; and although the soil is not yet entirely concealed from the view by its produce, yet the grass is from six inches to one foot in height.

But five bisons were seen to-day, a privation which communicates a solitary air to this region, when compared with the teeming plains over which we have passed, and of which these animals formed the chief feature.

Our distance this day on a straight line may be estimated at $14\frac{1}{4}$ miles, though the actual travelled distance was much more considerable.

During the space of one month, our only regular food, besides meat, has been coarsely ground parched maize meal, of which a ration of one gill per day was shared to each individual. This quantity was thrown into common stock, and boiled with the meat, into a kind of soup. This meal is nutritious, portable, not subject to spoil by keeping a reasonable length of time, and is probably to be preferred, as a substitute for bread, to other succedanea, by travellers in an uncivilised country. Our store of meal, however, was now exhausted, and we were obliged to resort to a small quantity of mouldy crumbs of biscuit, which had been treasured up for times of need.

At night almost incessant lightning coruscated in the north-western horizon.

Wednesday, 16th. Several showers of rain, with much thunder and vivid lightning, fell during the [80] night, and the early morning continued showery; but the clouds were evidently undergoing the change from nimbus to cirrostratus, in this instance the harbingers of a fine day. Several ravines occurred on the morning's journey, containing, in the deeper parts of their beds, pools of stand-

ing water. The first was of considerable size, with steep banks, and thickly wooded, as far up its course as the vision extended; the trees were principally oak, some walnut, elm, ash, mulberry, button-wood, cotton-wood, and willow.

A horse presented by the Kiawa chief could not be prevailed upon to traverse this occasional water-course; he evaded the attempts of several men to urge him forward; and after being thus fruitlessly detained a considerable space of time, the animal was shot. If he had been abandoned, he must have perished for want of water, having been accidentally deprived of sight, and more certainly, as that fluid, so indispensable for the support of the animal's life, was here of difficult access.

At the ravine, which served as a halting place during the mid-day heats, we first observed the plant familiarly known in the settlements by the name of *poke* (*phytolacca decandria*), reclining over the banks with its fecundity, in the midst of a crowded assemblage of bushes, and partially shading a limpid pool that mantled a rocky bed below. A large species of mushroom, of the puff-ball kind, was not uncommon, nearly equal in size to a man's head.

We have now passed the boundary of the summer bison range; and the wolves, those invariable attendants on that animal, are now but rarely seen. The antelopes also have disappeared. The river banks, as well as the creeks and some ravines, from near the Little Arkansa, are pretty well wooded, with but few interruptions, and in many parts sufficiently dense, but always, as yet, strictly limited to skirting those watercourses.

[81] During the afternoon we crossed numerous ravines, some of which, judging by the infallible indica-

tions of dried grass and floated wood lodged on high in the crotches of the trees, poured down at certain seasons large volumes of water from the prairies into the river.

Near our evening encampment, but on the opposite side of the river, appeared the entrance of a large creek, of the width of 90 or 100 yards, and of considerable depth; it seems to be well wooded, and its course is nearly parallel to the river for a great distance before it discharges into it. This stream is called Red river fork, its waters are turbid, opaque, and red;¹¹⁴ great numbers of fresh water tortoises, closely allied to the *testudo geographica* of Le Sueur, inhabit the basin formed by the entrance of this stream immediately below its junction. The bluffs on that side are washed by the stream of the river.

The bottom land, on the left bank, is still confined to a narrow strip. The sun having been, during the chief part of the day, obscured by an interrupted sheet of cirrostratus, and a brisk N. E. wind prevailing, rendered the day temperate and agreeable. Travelled distance miles nineteen and a half.

Thursday, 17th. Having been entirely unsuccessful in hunting since the 13th instant, we remained in our position during the morning, and sent out four hunters to procure fresh meat; but towards noon they all returned

¹¹⁴ Bell's party mistook the Nennescah (Nenescah, Nenesquaw, an Indian word meaning "good river") for the Negracka, which on the map is given the alternate name of Red Fork. Lieutenant Wilkinson's detachment of Pike's expedition made the same mistake in 1806; their report may have misled Bell's party. The Negracka is much farther south, but the members of the party were confused relative to their whereabouts from this time until shortly before they arrived at the Verdigris. The Nennescah drains most of the area inclosed by the Great Bend; Whitman, Sumner County, is at its mouth. The Negracka is now often called Salt Fork; the name Red Fork applies more properly to the Cimarron. The names, locations, and relative sizes of the western tributaries of the Arkansas between Great Bend and the Canadian made up a cartographical puzzle which resisted solution for another generation.—ED.

with but three turkies, of which two were young; they saw no deer, but much elk sign.

At two o'clock proceeded onward, upon a slightly undulated prairie, over which the eye roves to a great distance without impediment. Indeed the surface of the country, which extends along the upper portions of the Platte and Arkansa rivers, is generally less undulated than that which extends on either side of the Missouri.

[82] The ravines which intersected our path were not so extensive or profound as those of yesterday, and in one of them we observed the common elder (*sambucus*).

Should military possession ever be taken of this elevated country, eligible positions might readily be selected for military posts, at several different points below the Little Arkansa, where the bluffs almost impend over the river. Such a position was occupied by our evening encampment. This bluff is naked, of a gently rounded surface, presenting a high rugged and inaccessible front upon the river, which it commands to a considerable distance in both directions. An adequate supply of wood, for fuel and architectural purposes, is offered by a ravine, which flanks its lower side, and by other points.

Two fawns were killed during this afternoon's journey of twelve miles, and a black bear was seen. The bitter apple vine occurred now but rarely.

Friday, 18th. The inequality of the surface increases as we proceed, the undulations being now much more abrupt and considerable, belted near their summits with a rocky stratum, and assuming much the same character with those spoken of in the account of our expedition to the Konza village. This stratum, which is of gray and ferruginous sandstone, contains petrifications of marine shells, so completely assimilated with the matrix in which

they repose, and decomposing so entirely simultaneously with it, when exposed to atmospheric action, that even their generic characters cannot be recognised. Amongst other appearances, however, we observed a bivalve, which seemed to differ from terebratula and its congeners.

At the distance of eleven miles we crossed a small river, flowing with a very gentle current over a gravelly bed, with a breadth of fifty or sixty yards, and an extreme depth of three feet; we have named [83] it *Little Neosho*, or *Stinking Fork*.¹¹⁵ Its western bottom is of very considerable width, well wooded with the before mentioned description of trees, in addition to which the hackberry here first appears, and supporting a crowded undergrowth of pea-vines, nettles, and rank weeds, which obstruct the passage of the traveller. The eastern bank, upon which our noon-day encampment was established, was high rock and precipitous, requiring considerable exertion to surmount it.

Here the organic reliquiæ are somewhat more distinct than those which we examined on the opposite side of this secondary river. They are referable to those generally extinct genera that inhabited the great depths of the primeval ocean. Amongst them we recognized a smooth species of anomia of the length of half an inch, a species of terebratula, an encrinus, and numerous insulated species of a Linnæan echinus.

At two o'clock pursued our journey, under an extreme heat of 92 degrees, which was hardly mitigated by the gentle fanning of a slight S. E. breeze. The appearance of the country here undergoes a somewhat abrupt change.

¹¹⁵ This is the modern Walnut Creek, formerly called Whitewater River. Its course is nearly south through Butler and Cowley counties; Arkansas City is near the confluence. This creek should be distinguished from the stream of the same name mentioned *ante*, note 107.—ED.

Low scrubby oaks, the prevailing timber, no longer exclusively restricted, as we have hitherto observed it, to a mere margin of a watercourse, now was seen extending in little clusters or oases, in the low grounds. In the ravines, which are numerous, profound, abrupt, and rocky, we observed the hickory (*caria* of Nuttall), which had not before occurred since our departure from the forest of the Missouri. The bluffs are steep and stony, rendering the journey much more laborious to our horses, that were almost exhausted by traversing a plain country, and their hoofs, already very much worn by constant friction with the grass, will, we fear, be splintered and broken by the numerous loose and angular stones which they cannot avoid. Near the summits of some of these bluffs the stratum of rock [84] assumes an appearance of such extraordinary regularity, as to resemble an artificial wall, constructed for the support of the superincumbent soil.

At the distance of eight miles from the small river before mentioned we encamped for the night, on the east side of a creek which we call *Little Verdigrise*.¹¹⁶

It is about forty yards in breadth, and not so deep as the Little Neosho; its bed is gravelly, but the foot of each bank is so miry that we experienced some difficulty in crossing. There is but a slight skirting of forest, which

¹¹⁶ Now Grouse Creek; its course lies almost wholly within Cowley County, and its mouth is almost on the line separating Kansas and Oklahoma. The map is far from accurate in showing the tributaries of the Arkansas in this region. The Nennescah is much nearer to Walnut Creek than to the Little Arkansas; while the Negracka and all the other western streams marked on the map are south of the Kansas boundary (the thirty-seventh parallel). Slate Creek, in Sumner County, Kansas, was evidently mistaken for the Strong Saline (now Red Rock Creek, Oklahoma); but there is no tributary from the west, above Walnut Creek, corresponding to the Saline (Black Bear) Creek of the map. The cartographer appears to have forced matters here.—ED.

denotes to the distant spectator the locality of this creek.

One of the hunters returned with the information of his having discovered a small field of maize, occupying a fertile spot, at no great distance from the camp; it exhibited proofs of having been lately visited by the cultivators; a circumstance which leads us to believe, that an ascending column of smoke, seen at a distance this afternoon, proceeded from an encampment of Indians, whom, if not a war-party, we should now rejoice to meet. We took the liberty, agreeably to the customs of the Indians, of procuring a mess of corn, and some small but nearly ripe water-melons, that were also found growing there, intending to recompense the Osages for them, to whom we supposed they belonged. During the night we were visited by a slight shower of rain from the S.W., accompanied by distant thunder.

[85] CHAPTER XII [VI]

Indian Hunting Encampment — Brackish Water — The Party Pressed by Hunger — Forked-tailed Flycatcher — An Elevated, almost Mountainous, Range of Country — Desertion of Three Men — Red Water.

SATURDAY, 19th. Several small corn fields were seen this morning along the creek. At a short distance from our place of encampment we passed an Indian camp that had a more permanent aspect than any we had before seen near this river. The boweries were more completely covered, and a greater proportion of bark was used in the construction of them. They are between sixty and seventy in number. Well-worn traces, or paths, lead in various directions from this spot; and the vicinity of the corn fields induces the belief that it is occasionally occu-

pied by a tribe of Indians, for the purposes of cultivation as well as of hunting.

The increasing quantity of forest, partially obscuring the course of the river, renders it now no easy task to trace its inflexions.

After proceeding twelve miles over a rugged country, at present destitute of water, we were rejoiced to find at our dining-place a puddle of stagnant rain-water, which had been protected from the action of the sun by the elevated and almost impending bank of the ravine in which it was situated, and which, though mantled o'er with green, was yet cool and grateful to our pressing thirst.

We left our cool and shady retreat, and again betook ourselves to the prairies, under a temperature of 96 degrees. Our remaining dog, Buck, had been, [86] since the regretted death of his companion, treated with all the kindness and attention due to a humble friend. He was very frequently accommodated with a ride on horseback before one of the men when he betrayed unusual exhaustion. But notwithstanding all such attentions, for which he seemed touched with the feelings of gratitude, he experienced Cæsar's fate, and was necessarily abandoned.

The evening encampment was pitched upon a luxuriant grassy plain on the margin of the river. On tasting the water, it was perceived to be slightly saline, though the proportion of that condiment was not so considerable as to render it unpleasant to the palate. This saline intermixture is, no doubt, due to the Red river fork, inasmuch as the river, above the entrance of that stream, appeared entirely destitute of saline contamination, and no stream enters on this side in which the slightest apparent degree of brackishness is to be detected by the taste.

The cotton tree is less numerous in this vicinity than we have seen it higher up the river, and being intermixed with other trees, forms but an insignificant feature of the forest.

Sunday, 20th. Heavy rain, accompanied with much thunder and lightning, commenced early in the night, and continued until day-light this morning. Hunters who had been sent out detained us until nine o'clock, when they returned unsuccessful; in consequence of which, and of our having made a sparing meal last evening on a turkey that had been shot, we were obliged to depart fasting on our way.

The ravines were muddy and their banks slippery in consequence of the rain; we had, however, the good fortune to fall upon an Indian trace, which complied with our proper direction, and which indicated the best points at which the gullies might be passed. In its course it conducted us to a creek which was pouring down a torrent of water. Here was an encampment that had obviously been occupied [87] within a day or two, there being fresh rinds of water-melons strewed about it.

One of the party, on attempting to cross this creek, was thrown into the water, in consequence of his horse having plunged suddenly beyond his depth; he however avoided being carried down with the rapid current, by seizing the depending bough of a tree; the horse also was fortunately saved; by taking a different direction, we all passed over without further casualty.¹¹⁷

But we were unable to trace any farther the party that we thus ascertained to have so recently preceded us, their footsteps being here entirely obliterated by the rain.

¹¹⁷ Doubtless (Big) Beaver Creek, in the Kansa reservation.— Ed.

At the distance of sixteen miles we encamped at an early hour on the bank of the river, and sent out hunters, who, however, after examining the vicinity, returned unsuccessful. Our three meals were therefore again, by stern necessity, reduced to a single frugal one, and our table, the soil, was set with a few mouldy biscuit crumbs, boiled in a large quantity of water, with the nutritious addition of some grease. Julien, who had been despatched for the peace flag, which was casually left at a ravine, to our great satisfaction returned with a skunk or polecat, that he had fortunately killed. This we determined to preserve for a feast to-morrow.

Monday, 21st. One of our horses strayed away last night, and could not now be found, we therefore set out without him, and as usual without breakfasting. The Indian trace was again discovered, and pursued about nine miles to the dining place at noon. Here we were obliged to have recourse for food to a little treasured store of dried bison meat, which, when all issued, amounted to the pittance of two ounces per man; this, added to the soup maigre of the skunk, and a half pint of the crumbs of bread, afforded a tolerably good though far from abundant meal.

[88] Proceeded on under an extreme atmospheric temperature of 90 degrees; several deer were seen, but they proved to be so shy, that our hunters, perhaps through over-eagerness, did not succeed in approaching them within gun shot. After accomplishing a distance of ten miles, we pitched our camp on the river bank. Here the stream turns rather abruptly to the east, after having preserved a southerly and south of west direction for a considerable distance. A considerable stream of water,

called Nesuhetonga, or Grand Saline creek, flows into the river at this point, nearly opposite to our camp.¹¹⁸

Supped on a few bread crumbs boiled in water. A black wolf, the first seen since our departure from the Missouri, made his appearance in the distance.

Tuesday, 22d. Three of the horses having strayed detained us until eight o'clock, when a fall of rain commenced, which continued during the morning, and wet us thoroughly to the skin. A few hostile Indians, aware of the state of our fire-arms, might perhaps have disappointed our hopes of a safe return to the settlements, if, in their attack, their bow-strings could have been preserved from the effects of the rain, which tends greatly to relax them.

A note like that of the prairie dog for a moment induced the belief that a village of the marmot was near; but we were soon undeceived by the appearance of the beautiful *tyrannus forficatus* in full pursuit of a crow. Not at first recognising the bird, the fine elongated tail plumes, occasionally diverging in a furcate manner, and again closing together, to give direction to the aerial evolutions of the bird, seemed like the extraneous processes of dried grass, or twigs of a tree, adventitiously attached to the tail, and influenced by currents of wind. The feathered warrior flew forward to a tree, from whence, at our too near approach, he descended to the earth at a little distance,

¹¹⁸ Being now opposite the mouth of the Negracka, or Salt Fork of the Arkansas, for which five days previous they had mistaken the Nennescah, Bell's men naturally infer that they are at the Cimarron, to which alone the names used in the text were ever applied; it is much larger than the "considerable stream" noted. Its confluence is, on a straight line, some fifty miles farther down, about midway between the present camp and the mouth of the Verdigris. By abandoning their route along the immediate bank of the Arkansas on the twenty-eighth, the party missed the Cimarron.— Ed.

continuing at intervals his chirping note. This bird seems to be rather rare in this region, and as the [89] very powder within the barrels of our guns was wet, we were obliged to content ourselves with only a distant view of the bird.

The river margin, on which we now hold our course, is narrow and fertile, supporting a tolerably thick growth of mossy cup oaks, with walnut, cotton-wood, elm, and much underwood, through which it is sometimes rather difficult to force a passage. The river is now more serpentine in its course than it was remarked to be nearer the mountains, but it is here wide and still, thickly studded with sand-bars.

One of the hunters rescued the body of a small fawn from the wolves that had killed and embowelled it. This afforded us all a good dinner, and as we had in the morning drawn upon our almost exhausted store of sweet corn for a gill to each man as a breakfast, we are to-day comparatively well-fed.

Near our evening encampment was a large old Indian hunting camp. Our distance to-day nineteen miles.

Wednesday, 23d. Set out again fasting, and pursued our journey over a beautiful open level bottom. The bluffs on our left, of but moderate height, were partially clothed with oaks, and the river on the right skirted with the cotton tree. But a single ravine crossed our morning route. At eleven o'clock the mercury in the thermometer indicated 93 degrees.

At the distance of about two miles from our resting-place of noon we again halted and pitched the tents, in anticipation of a violent storm, as a nimbus of an unusually menacing aspect was otherwise announced by wind and thunder, and seemed rapidly approaching from the south.

In order to avail ourselves of this delay, the hunters were sent out to endeavour to procure some food. But as the storm passed round, they were soon recalled, bringing with them the seasonable supply of four turkies. On the subsequent part of this day we passed over a small [90] stream, which we call Bitter Apple Creek, with but a slow-moving current, of the width of about ten yards, and three feet deep. Its bed was so muddy that two of the pack-horses were mired, but were finally brought out. We then ascended into the prairie, from which, after labouring over an almost continual succession of ravines, we passed down to the river bank, and encamped for the night, having travelled about twenty miles. Numerous deer were seen to-day, but they were very shy.

The last bitter apple vine that occurred on the expedition was seen to-day. We were once again saluted by the note of the blue jay. The pine warbler (*sylvia pinus*) also occurred.

Thursday, 24th. As the high prairies offered almost continually a succession of steep and rugged ravines, which called for too much exertion for our horses to pass them, it was determined to endeavour to force our way through the underwood of the bottoms. These we found to be now so intricate, that in many places it was really difficult to force a passage through the intertwined briers and climbing plants. Our progress was, however, at length altogether interrupted by a deep and miry sluice of the river over which no ford could be found. Fortunately, however, the sandy bed of the river itself offered a sufficiently firm footing to enable us to pass round the obstacle. Tired of the brambles, we again sought the prairie, and, ascending an elevated hill, enjoyed a fine view of the river in its meanders to a great distance; but

the place of destination, Belle Point, which we now all anxiously look out for, was not yet in sight.

A journey of nine miles and three quarters brought us to a large stream of clear water, but hardly perceptible current, passing over a bed of rock and mud; the banks were steep and high, and afforded us a very pleasant resting-place during the presence of the mid-day heats. A flock of paroquets flew over our [91] heads, uttering their loud note, with their usual loquacity. The king-fisher was flying from one withered support to another, over the surface of the creek, and occasionally darting into the water in pursuit of some little scaly victim; and a large white crane (*ardea egretta* of Wilson) stalked with slow and measured strides in the shallows of the creek. A glass snake (*ophisaurus ventralis*) approached too near us, and was captured.

In the afternoon small cumulus clouds arose in the horizon, and we again put forward under a temperature of 95 degrees. Three miles farther a large ravine occurred, containing much water in the deeper parts of its bed, but dry at intervals; it is wooded as far as we can trace it with the eye, and in the season of floods must discharge a large volume of water at its confluence, which is distant about five miles from the creek crossed this morning.¹¹⁹

We passed by several singular natural elevations, with conical summits, and halted early to hunt, for which purpose four men were sent out, who returned with two turkies, which furnished us with a very light supper.

Friday, 25th. Remained encamped in order to give the hunters an opportunity to procure some game. We

¹¹⁹ The path of the party on August 23 and 24 followed an eastward bend of the river, beginning at the northwest corner of the Pawnee Reservation. Several creeks enter along this bend, the most important of which now bear the names of Buck and Gray Horse.—ED.

had nothing for breakfast or dinner, and as our meals a few days past had been few and slight, we have become impatient under the pressure of hunger; a few freshwater muscles (*unio*), two or three small fishes, and a tortoise which had been found in the mud of the ravine, were roasted and eaten, without that essential condiment salt, of which we had been for some time destitute. The hunters so anxiously looked for at length returned, bringing but three ducks (*anas sponsa*); one of them had shot down three deer, but they all escaped.

As we have no idea of our distance from Belle Point, and know not what extent of country we are doomed to traverse in the state of privation to which [92] we have of late been subjected, we have selected, from our miserable horses, an individual to be slaughtered for food, in case of extremity of abstinence; and upon which, although very lean, we cannot forbear to cast an occasional wishful glance.

Bijeu, before he parted from us, urged by his wishes for our safety, drew for our information a sketch of the country over which we had to pass, as far as he had travelled in that direction on a former occasion, which sketch was terminated by two large streams entering the river near to each other, and diverging in the opposite direction. As the remarkable relative course of these two streams, as represented by Bijeu, corresponded to sufficient exactness with the representation of the Verdigrise and Grand rivers, which terminated a sketch which Major Long drew to depict the country from Belle Point upwards, we believed that by joining the two sketches we had a complete view of the country before us, as far as the settlements. Bijeu's sketch proved to be a pretty faithful transcript of the country, as far as the two water-

courses that we passed on the 18th instant; which, as they terminated his map, we then supposed were, of course, the Verdigrise and Grand rivers. But not being able to recognise in Major Long's draft one single feature of the region we have since traversed, we finally concluded, either that we had not yet arrived at the true Verdigrise river, or that we had passed by our place of destination without perceiving it. In this state of uncertainty it was determined to continue our course with as much speed as the exhausted situation of our horses would permit, with the hope of soon arriving at some settlement, where we might obtain the proper direction.

The greatest heat of the day was 97 degrees. Two hunters were this evening sent forwards to encamp, and hunt early in the morning. Another flock of paroquets were seen to day.

[93] Saturday, 26th. Penetrated through an intricate bottom of bushes, interlaced by vines and briers, the timber chiefly oak. The hunters had procured nothing; but Lieut. Swift had the good fortune to kill a fine buck, and one of the hunters afterwards a turkey. These were a happy alleviation to us, and at our noon halting-place we enjoyed the rare luxury of a full meal. At this position was a large ravine, containing much water of the depth of two ⁶/₁₀ feet and a half, and width of twenty or twenty-five yards, but without any visible current; its bed was muddy, and in some places rocky.

The journey of the afternoon was equally intricate with that of the morning; our way led along the fertile but narrow eastern margin of the ravine, or as it would be called in the settlements of the Arkansa, *bayou*, and immediately on our left ascended the abrupt and rocky ridge of the bluff.

After a fatiguing journey of 19 miles we encamped on the river bank, in a fine clear bottom, surrounded semi-circularly by the forest. The plum-bushes, which abound in the country through which we have for several days been travelling, are generally killed, probably by conflagration, their black and defoliated branches strongly contrasted with the verdure around them; to-day, however, we met with some which had escaped uninjured, and which afforded a few ripe plums.

Sunday, 27th. The river bottom becoming very narrow, obliged us to ascend upon the high grounds, which we found to be little less than mountainous, often rocky and steep, and, as usual, intersected by profound ravines. Mr. Swift having succeeded in killing another deer, we halted, after a journey of twelve miles, in order to jerk the meat which we now possessed, and to rest the horses, whose feet were bruised and broken by the fragments of rock.

The corporal did not join us until evening. The horse which he had rode became so exceedingly feeble [94] as to be no longer able to support the weight of his rider, who therefore dismounted, and attempted to drive him on before him. In spite of his utmost endeavours the horse proceeded so slowly that the corporal was obliged to forsake him, in order to seek our trail, which he had lost on the rocks over which we had passed. Not being able to regain the trail, and supposing we had directed our course towards the river, he wandered along its margin to a considerable distance, until almost exhausted with fatigue and vexation. He at length ascended a considerable hill which commanded a view of the country around, from which he had the satisfaction to see a column of smoke rising above the forest at a distance. This sure

indication he had pursued, until approaching with much caution, he was overjoyed to ascertain that his beacon was no other than the smoke from our meat-drying process. Supposing that the horse would be able to travel after having rested during the night, the corporal was directed to accompany Julien to the spot where he had been left, and to bring him on in the morning.

We availed ourselves of this leisure-time to mend our horse-gear, clothes, and mockasins.

In the evening a slight fall of rain took place, accompanied by thunder in the N. E., which at night became heavy and loud.¹²⁰

Monday, 28th. The horse that gave out yesterday was brought in, together with two others that had strayed, and for which we were hunting. We were now traversing a high ridge of country, which, at many points may be safely estimated at five hundred feet above the surface of the river, and wooded to a great distance from that stream.

In the afternoon, having descended to the river, we again laboured through the difficulties of dense under-wood, which such productive soils usually present, until towards evening, when we had the happiness to see a well-worn Indian path which had been [95] interrupted by the river, and now took a direction towards our left. Wishing to pursue this route, as well for the facility of travelling as with the hope of soon arriving at some Indian town, we readily persuaded ourselves that it deviated from the course we were pursuing only in compliance with the inequalities of the country. With little hesitation, there-

¹²⁰ The creek nearly opposite the camp of the twenty-seventh, unnamed on the map, is Saline (Black Bear) Creek, which the party thought had been passed far up stream.— ED.

fore, we struck into the path, and night gathered around us before we threw ourselves supperless upon the ground to repose, after a fatiguing march of about twenty-one miles, during which the greatest degree of heat was 92.

Several small flocks of the common wild pigeons flew by us, both yesterday and to-day, in a southerly direction.

Tuesday, 29th. After some detention in seeking a troublesome horse that had strayed, we again proceeded forward fasting. This abstinence, to which we have been several times subjected, affects one of our party in a singular and uniform manner; his voice becomes hollow-toned, and his hearing much impaired, a state that is popularly known, as he expresses it, by the phrase of *the almonds of the ears being down*.

We pursued the Indian path a considerable distance this morning; but as its course continued its divergence from the river, and we were fearful of deviating too far, we abandoned it, and by an oblique course endeavoured to regain the river. Here, however, the undergrowth being almost impervious, induced our return to the path, which we again attained near an Indian hunting camp of the past season, situated in a beautiful prairie, near a gently swelling hill.

Here finding a little water in a ravine puddle, we halted, and served out a stinted ration of dried meat to each individual instead of dinner, which, so far from gratifying, tended to stimulate our desire of food.

[96] Having been some days entirely destitute of tobacco in any shape, those of the party who are habituated to the use of it experienced an additional formidable privation. One of the men, who was erroneously supposed to have still a remnant of the precious stimulant

in his possession, was heard to reply to an earnest and most humble petition for a small taste of it, or to be allowed to apply his tongue to it:—“Every man chaws his own tobacco, and them that hasn’t any chaws leaves.”

During the prevalence of the greatest heat of the day, which was 94 degrees, we again set forward, and passed over a gently undulated surface, supporting an open forest of young and scrub oak, intermixed with hickory. In the course of a few miles we arrived at the edge of this forest, which here crowned a much elevated region. It was in fact higher in proportion to the surface before us than any other portion of the country we had seen on this side of the mountains. The eye from this height roved over a vast distance of prairie, and comparatively plain country; and it was evident that we had now passed the hilly and even mountainous country, which we have of late been traversing. A few hills still interrupted the continuity of surface below, more particularly on the right of the landscape towards the river. Not a human being was yet to be perceived, nor a single trait indicative of their present existence. It seemed for a moment that our little cavalcade alone was endowed with the vital principle, and that the vegetable world held a silent and solitary dominion. Belle Point still evades our sight; we might have passed it, or it may still be very far before us; yet we can no longer struggle through the tangled underwood that encloses the river, nor pick our passage amongst the loose stones of the bluffs, in order to preserve an uninterrupted view of the bank of the river upon which that post is established. From this [97] position the path winds rather abruptly downward, and, at a little distance

on the plain, conducted us through an abandoned Indian hunting camp.

The horse that gave out on Sunday, having been since both packed and rode, this afternoon sunk under his rider to the ground, and resisted our efforts to induce him to rise. As he appeared to be entirely exhausted, we reluctantly abandoned him. He had been a sprightly, handsome, and serviceable animal, and was chosen from a considerable number of horses, and presented to Mr. Say, by Major O'Fallon, when at the Pawnee villages.

After a day's journey of twenty-two miles, a favourable situation for an encampment offering timely at a site which appeared to have been occupied by a tribe of Indians during the late winter, induced us to pitch the tents, and prepare for the night. And Lieutenant Swift, whose dexterity as a marksman had previously relieved us in times of need, now succeeded in killing a turkey for our evening meal.

Wednesday, 30th. We pursued the path about ten miles farther, with the hope of its soon terminating at some Indian village; but as it continued to diverge too widely from our apparent true course, we once again relinquished it, and turned towards the river, which we expected to regain in the course of a few miles, by tracing down the opposite bank of a large ravine, which now presented itself.

At our resting place of noon the banded rattlesnake (*C. horridus*) occurred, and five young turkies were procured by the hunters.

Resuming our journey, it soon became obvious that the ravine we were tracing did not discharge into the Arkansa, but into some large tributary of that river,

and which, from an elevated ground, we could distinctly see meandering to a great distance on the left.¹²¹ Another Indian path was now discovered, which by its direction seemed to comply with our proper course. It led us to recross the ravine, [98] with its most luxuriant growth of trees, bushes, and weeds. On emerging from this intricate maze we observed a large column of smoke arising in the south-east, as if from the conflagration of some entire prairie. This occurrence, combined with the effects of a large *burning* in the vicinity of our evening encampment, that seemed very recent, and the appearance of the well-worn pathways, inspired us with a renewed expectation of soon meeting with human beings, and of arriving at some permanent Indian village.

The highest temperature of the day was 95 degrees. Our distance this afternoon was ten miles.

Thursday, 31st. We arose early, and on looking at the horses that were staked around the camp, three of the best were missing. Supposing that they had strayed to a distance, inquiry was made of the corporal respecting them; who answered that three of the men were absent, probably in pursuit of them, and added, that one of those men who chanced to be last on guard had neglected to awaken him to perform his duty on the morning watch. Forster, a faithful, industrious soldier, and who, in performing the culinary services for the party, had not

¹²¹ The route of the party on the twenty-ninth and thirtieth probably led them across the upper course of Hominy Creek, a tributary of the Verdigris, flowing parallel with the Arkansas. They evidently mistook it for a tributary of the Arkansas; the map shows such a tributary crossed on the twenty-ninth, but there is none at the place indicated. This supposition is borne out by the misconception relative to the direction of the ravine crossed on the thirtieth; this depression may have been the dry course of the same creek. The stream visible from the elevated ground was either the Verdigris or Bird Creek, which unites with Hominy Creek on the Osage-Cherokee boundary.—ED.

lately been laboriously occupied, now exclaimed, that his knapsack had been robbed; and upon examining our baggage, we were mortified to perceive that it also had been overhauled and plundered during the night. But we were utterly astounded to find that our saddle bags, which contained our clothing, Indian presents, and manuscripts, had also been carried off.

This greatest of all privations that could have occurred within the range of possibility, suspended for a time every exertion, and seemed to fill the measure of our trials, difficulties, and dangers.

It was too obvious that the infamous absentees, Nolan, Myers, and Bernard, had deserted during the night, robbing us of our best horses, and of our most important treasures. We endeavoured in vain [99] to trace them, as a heavy dew had fallen since their departure, and rested upon every spear of grass alike, and we returned from the fruitless search to number over our losses with a feeling of disconsolateness verging on despair.

Our entire wardrobe, with the sole exception of the rude clothing on our persons, and our entire private stock of Indian presents, were included in the saddle bags. But their most important contents were all the manuscripts of Mr. Say and Lieut. Swift, completed during the extensive journey from Engineer Cantonment to this place. Those of the former consisted of five books, viz. one book of observations on the manners and habits of the Mountain Indians, and their history, so far as it could be obtained from the interpreters; one book of notes on the manners and habits of animals, and descriptions of species; one book containing a journal; two books containing vocabularies of the languages of the Mountain Indians; and those of the latter consisted of a

topographical journal of the same portion of our expedition. All these, being utterly useless to the wretches who now possessed them, were probably thrown away upon the ocean of prairie, and consequently the labour of months was consigned to oblivion by these uneducated vandals.

Nolan, Myers, and Bernard, though selected by the officers of Camp Missouri, with the best intentions, for the purpose of accompanying our party, proved worthless, indolent, and pusillanimous from the beginning; and Nolan, we ascertained, was a notorious deserter in two former instances.

This desertion and robbery occurred at a most unfortunate period, inasmuch as we were all much debilitated, and their services consequently the less dispensable on that account, in the attentions necessarily due to the pack-horses, in driving these animals, loading and unloading them, &c.

[100] We resumed our journey upon our Indian pathway in silence, and at the distance of sixteen miles we passed through the river forest, here three miles in width, and once again encamped upon the bank which overlooks that stream. No trace of Belle Point, nor any appearances of civilization were yet in view. But we were all immediately struck with the change in the appearance of the water in the river. No longer of that pale clay colour, to which we have been accustomed, it has now assumed a reddish hue, hardly unlike that of the blood of the human arteries, and is still perfectly opaque, from the quantity of an earthy substance of this tint, which it holds in suspension; its banks and bars are, from deposition, of the same colour. This extraneous pigment has been contributed by some large stream flowing in from

the opposite side, and which, in consequence of our late aberrance, we had not seen.¹²²

The hunters returned without game, but bringing us a few grapes and some unripe persimmons, all of which were eaten.

The extreme heat of the day was 95 degrees, and in the evening thunder and lightning occurred in the western horizon.

[101] CHAPTER XIII [VII]¹²³

The Party Meet with Osage Indians — Some Account of this Nation — Manner of Taking Wild Horses.

FRIDAY, September 1st. The hunters, who had been sent out at day-light, returned at eight o'clock again unsuccessful, but after a journey of about three hours we had an opportunity to appease the cravings of hunger, and halted to regale ourselves on a small fawn that was shot. At three o'clock proceeded on under the extreme atmospheric temperature of the day of 96 degrees, and, as the current of air was scarcely perceptible, the day was as usual very sultry. We were at length very agreeably surprised by hearing an Indian whoop in our rear, and on looking back a mounted Indian was observed upon a rising piece of ground, contemplating our movements. The usual ceremony of displaying our flag, and deputing an individual to assure him of the pacific nature of our mission, induced him readily to approach; and after some

¹²² This stream was the Cimarron, then known as the Nesuketonga, or Grand Saline, opposite which the party thought they had encamped on the twenty-first. The point at which they again reached the Arkansas was probably near the Osage-Cherokee line, about twenty miles below the mouth of the Cimarron.—ED.

¹²³ For sketch of the Osage Indians, see Bradbury's *Travels*, in our volume v, note 22. On Clermont, see *ibid.*, note 108, and Nuttall's *Journal*, in our volume xiii, note 195.—ED.

communication, he consented to encamp with us. He informed us that he was the son of Clermont, principal chief of the Osages of the Oaks, or *Osage des Chênes* of the French traders; in whose territories we then were. Their village was at the distance of about fifteen miles, but by far the greater portion of the inhabitants of it were now on their way to this river for the purpose of hunting. They had heard the report of the guns of our hunters, and, agreeably to their custom, had sent out spies, of whom he was one, to ascertain from whom the firing proceeded; that he had fallen upon our trail, and consequently had no difficulty in finding us, and was moreover glad to see us. Indeed his conduct proved that he [102] entertained towards us the most friendly and generous disposition. He was not tardy in ascertaining our wants, nor parsimonious in his attempts to relieve them. He passed his pipe around, a ceremony which signifies just as much among these people as the drinking to friendship and good fellowship does amongst the lower classes in civilized society; but to us, who had been so long deprived of the use of tobacco, it was an intrinsic gratification. He then laid before us some fine ripe blue plums; and remarking that the small portion of fawn meat, that constituted all our store, was very lean, he said that he would soon bring some more palatable food, and leaving his pipe and tobacco pouch on the ground, with the request that we would partake freely of both, he disappeared in the forest.

It was dusk when he returned with a fat buck hanging in pieces from his saddle; he was accompanied by five or six young warriors. These young men had visited the opposite side of the river, where they had discovered a herd of bisons, and as they were hastening back to Cler-

mont with the intelligence, they observed our trail, which they mistook for that of a Pawnee war-party, and were exerting their utmost speed homeward, when they met with our friendly Indian, who smiled when he informed us of their mistake.

The remnant of our fawn had been cooked, and was partly eaten on their arrival, when they readily accepted our invitation to partake of it. In return for which, when their meat was prepared, the whole was set before us, and they respectfully waited until we were satisfied.

We now ascertained our position with respect to the settlements. We were within about four days march of Belle Point, and the next large stream we would cross was the Verdigrise.

Previous to retiring to rest the Osages performed their vespers by chanting in a wild and melancholy [103] tone a kind of hymn to the Master of life. Very remote lightning in the S. E. horizon.

Saturday, 2d. Our guests awakened early, and one of them, retiring a short distance from his companions, began the well-known ceremony, common to this nation, of crying aloud with a voice of lamentation, intended probably as an invocation of the departed spirit of a relative or friend.¹²⁴

Messengers were despatched before sunrise to Clermont's camp, to inform that chief of the proximity of a party of white men on this side of the river, and of bisons on the other; and soon afterwards the remainder of our guests, with the exception of one that concluded to remain with us, departed to hunt.

Other Indians, attracted by curiosity, visited us in the

¹²⁴ See description of this custom in Bradbury's *Travels*, in our volume v, p. 63.—ED.

course of the day, one of whom informed us, that three men, whose appearance corresponded with the description of our deserters, were now at the village; and that the approaching hunting party being already apprised of their character, Clermont, who was himself with the party, had forthwith despatched an order to the village to have them detained there until the decision of our chief respecting them should be known.

This most welcome news induced Lieutenant Swift and Julien, accompanied by Clermont's brother, and two or three of the young warriors who were present, to set out immediately for the village, in order to seize the recreants, and conduct them to camp. Thus we were inspired with the most sanguine expectations, not only of retrieving our losses, but also of subjecting the offenders to that punishment which was their due.

In the afternoon we had the company of numerous Indians from the hunting party; and an individual, that left our camp early in the morning in pursuit of the bisons on the opposite side of the river, brought a horse load of very lean meat. Their demeanour was pacific and kind, and they appeared disposed to [104] serve us. They brought a considerable quantity of plums of a blue colour, and exceedingly agreeable taste, which were collected from trees growing in the adjacent forest. Our cook having intimated to one of them our want of salt, he instantly mounted his horse, and, after a short absence, returned with a supply. One half of the hunting party was soon afterwards observed fording the river in a long line about a mile below our camp; the other portion, we were told, would cross the river at some point above the camp to-morrow morning, and would act in concert with

the others, so as to surround the herd of bisons that they were now going in pursuit of.

In the evening Mr. Swift returned unsuccessful; when he left us in the morning he directed his course to Clermont's camp, which he found in the prairie near a little impure puddle of water. He was very cordially and graciously received by the chief, who invited him to partake of some food. He assured Mr. S. of his regret at being unable to induce any of his young men to pursue our fugitives, who, as he had but then been informed, departed from the village early in the morning. This unwillingness on the part of his young men arose from their extreme anxiety to hunt the bisons, that were at this time unusually near; an enjoyment which they would on no account relinquish. He likewise regretted that he was at present so circumstanced as to be unable to comply with his wishes by visiting our camp. "But," said Clermont, "if your chief will visit me at my camp, which will be established near yours in the evening, I will treat him well; I will present him with as much maize and dried meat as he wants. I will, moreover, furnish him with young men to serve as guides, and a horse or two if he wants them, to aid in the transportation of the baggage." Lieutenant Swift assured him that we were much in want of such assistance as he had proffered, and that on our arrival at Belle Point his generosity should be [105] requited; but the chief declared his indifference to any recompence for such services. Mr. Swift further learned that the deserters, during their short stay at the village, had traded freely for provisions with the trinkets they found in our saddle bags; and although dressed in our clothing, they appeared to imagine themselves sus-

pected to be not what they seemed. This idea was in truth well-founded; for the Indians observing that they retained their guns constantly within their grasp, even when partaking of the hospitality of the different lodges, believed them to have committed some crime or outrage, in consequence of which they regarded themselves as unsafe in any asylum.

As the camp was about to move when Mr. Swift arrived there, he now took his leave to return, but inadvertently deviating from the proper course, he struck the river several miles above our camp. Clermont, meeting with his trail, perceived at once that he had gone astray, and immediately deputed one of his sons to pilot him to our camp.

In the acceptation of these Indians white man and trader seemed to be synonymous, and many of those who visited us importuned us much to trade for leather, dried meat, pumpkins both dried and fresh, &c.; in exchange for which they desired our blankets, and even the clothing from our bodies.

The superiority of the hunting qualifications of the Indians over those of our hunters was obvious in an instance which occurred to day. The corporal went to the forest for the purpose of killing a deer, and it was not long before an Indian, who accompanied him, pointed out one of those animals in a favourable situation. The corporal fired, but thought he had missed his object. The Osage, however, insisted that the animal was mortally wounded, and advanced forward a very considerable distance, where our hunter could see nothing of the usual sign of blood, or trodden grass, and found the victim dead upon the ground. [106] One of the party, on another occasion, saw an Osage shoot at a deer running, and wound him; another Indian, at a short distance further, fired at

the same deer and brought him down, both, of course, with single ball.

The extreme heat of the day was 95 degrees.

Sunday, 3d. Our chief, who upon the invitation of Clermont visited the Indian camp accompanied by Julien and Clermont's son, returned this morning with two other sons of that chief, and a handsome young squaw, wife of one of them. His reception was not equal to his anticipations; Clermont, however, and one of his sons, each presented a skin of maize; but that chief could not realize the almost splendid offers he had made of guides and horses.

Word was brought to Clermont that the information received yesterday, of our deserters having departed from the village, was incorrect, and that they still remained there. This induced, at once, the offer of every thing they were in possession of, with the exception of the manuscripts alone, to any persons who should bring them to our camp. With this liberal offer Clermont himself, accompanied by Julien, set out for the village to arrest them, but on their way a messenger, whom they met, assured them that they had actually and finally departed this morning. Thus all our hopes of recovering our lost property vanished.

The stature of the Osages that fell under our observation was by no means superior to that of the Missouri Indians, and in very many instances their form exhibited a beautiful symmetry. They do not seem to differ, in point of features or colour, from the Indians just mentioned. But the custom seems to be still more general in this nation of shaving the head, so as to leave only a scalp on the back part and above, which is, as usual, ornamented with silver plates, brooches and feathers.

[107] Their dresses and decorations are very similar to those of the Omawhaws, Otoes, and Konzas; but, from their proximity to the settlements, they are furnished with a great proportion of manufactured articles from the Whites.

Their government, so far as we could ascertain, was of the same description with that of the other nations; and their manners, though perhaps less fierce and warlike, seem to be, with the exception of their vociferous matins, not very essentially distinct.

They have the usual armature of the bow and arrow, tomahawk, war-club, and scalping-knife; but a large proportion of them have fusees, and we saw but very few who bore the lance and shield. They are freely branded by the Missouri Indians with the epithet of cowards. They are, at present, in amity with the Sauks and Foxes; and their friendship with the Konzas, with whom they freely intermarry, seems to have been uninterrupted since the expedition of Lieutenant Pike.

The horses belonging to the Osages are by much the best we have seen amongst the Indian nations, and they are kept in the best order. The Indians generally of this country appear to be excellent connoisseurs of horses, and to perceive any defects in them with a remarkable readiness. One of Clermont's sons possessed a very fine horse, for which the Kaskaia horse was offered, but the exchange was refused.

Horses are the object of a particular hunt to the Osages. For the purposes of obtaining these animals, which in their wild state preserve all their fleetness, they go in a large party to the country of the Red or Canadian river, where these animals are to be found in considerable numbers. When they discover a gang of the horses, they distribute

themselves into three parties, two of which station themselves at different and proper distances on the route, which by previous experience they know the horses will most [108] probably take when endeavouring to escape. This arrangement being completed, the first party commences the pursuit in the direction of their colleagues, at whose position they at length arrive. The second party then continues the chase with fresh horses, and pursues the fugitives to the third party, which generally succeeds in so far running them down as to noose and capture a considerable number of them.

The name of this nation, agreeably to their own pronunciation, is Waw-sash-e; but our border inhabitants speak of them under the names of Huz-zaus, and O-saw-ses. The word Wawsashe, of three syllables, has been corrupted by the French traders into Osage; and though the spelling of the latter has been retained by the Americans, we have still farther swerved from the original, by pronouncing the word agreeably to the genius of our language.

The lodges or huts of their villages are yet covered with the bark of trees, but it is probable that they will adopt the more permanent and preferable architecture of dirt lodges, used by most of the Missouri nations.

As we proceeded to load our horses at ten o'clock, in order to continue our journey, we perceived that several small articles of no great value had been pilfered from us by our visitors. These are the only losses we have sustained from Indian theft during this protracted journey. During the stay of our party at Fort Osage last season, Mr. Sibley, Indian factor at that place, politely furnished us with the following information respecting the Osages; being the copy of a report made by him to government,

in the late war with Great Britain. We present it to the reader in Mr. Sibley's own words:

“1st. The Chancers,¹²⁵ or band of the Arkansa, 600 men; town situated near the mouth of the Verdigrise, a branch of the Arkansa; Clermont first chief.

[109] “2d. The Great Osages, or White Hair's band, 400 men; town situated near the head of the Osage river; Che-sho-hun-ga, first chief.

“3d. The Little Osages, 250 men; town situated on the Ne-ozho, a branch of the Arkansa; Ne-zu-mo-nee, first chief.

“These tribes are at war with all their neighbours, except the Konzas, and a part of the Sauks and Foxes; with the Konzas they are and long have been on the most intimate and friendly terms; with the Sauks and Foxes they are at present barely at peace. All their chiefs (except Clermont) are very weak and unpopular. Many of their great war captains are in opposition to their chiefs, and have powerful influence in their respective tribes. Of these are ‘The Duck,’ ‘Big Wolf,’ and ‘John L. Foe,’ of the Great Osage; ‘Sansoreille,’ ‘Big Soldier,’ and ‘The Soldier of the Oak,’ of the Little Osage.¹²⁶ Their

¹²⁵ The Arkansas band of the Osage were known by the French name of *Osage des Chênes* (Osage of the Oaks). Chancers is evidently a corruption of *chênes*.—ED.

¹²⁶ For sketch of White Hair, see Bradbury's *Travels*, in our volume v, note 108; and Nuttall's *Journal*, our volume xiii, note 194. John L. Foe (Watch-awaha; called Jean La Fou by the French) was White Hair's son-in-law, and second chief of the Grand Osage. Sans Oreille (Without Ears, Indian name Tetobasi) was first soldier of his tribe as early as Pike's visit in 1806. He and Big Soldier (Has-ha-ke-da-tungar) were in a company of Indians whom Pike escorted to their homes. Part of these tribesmen had visited Washington as delegates of their nation, and some had lately been ransomed by the United States from captivity among the Potawatomi. Lieutenant Wilkinson, of Pike's command, accompanied them to the Little Osage village in August, 1806, and among his entertainers on the occasion of that visit was The Soldier of the Oak.

council are very much distracted by the jealousies and intrigues of the principal warriors, and for want of energy and decision in the chiefs. When I left them last spring, my impressions were, that the Osages were generally disposed to be at peace with us, but they were very much dissatisfied and displeased, and losing their former unbounded confidence in us, in consequence of what they alleged to be a failure on the part of the United States to fulfil the treaty existing between them and the United States. My opportunities for observation and inquiry concerning the temper and disposition of those Indians were very good, and were not neglected. And my acquaintance with the Osages being very general (extending almost to every individual), and of long standing (upwards of eight years), enables me to speak confidently of them.

“In the year 1804 the President of the United States gave his promise to a number of Osage chiefs, then on a visit at Washington, to establish for them a trading-house on the plan authorized by a law of [110] congress. In 1806 the President repeated the same promise to another deputation of Osage chiefs then here. In 1808 the President ordered the establishment to be made, and accordingly in October of that year it was made. So far this was a gratuitous act of the government; but in the following month it assumed a very different character. On the 8th November 1808 Peter Choateau (the U. S. agent for the Osages), arrived at Fort Clark.¹²⁷ On the

This cognomen is a translation of his French name (*Le soldat du chêne*), given, it is said, on account of a desperate fight with several assailants, during which he sheltered himself behind an oak. His portrait, painted upon the occasion of a visit to Washington in 1805 or 1806, is published in McKenney, *Indian Tribes*, ii, p. 169.—ED.

¹²⁷ Peter Chouteau, more commonly known by his French name of Pierre, and his elder brother Auguste, were founders of St. Louis. They long were

10th he assembled the chiefs and warriors of the Great and Little Osages in council, and proceeded to state to them the substance of a treaty, which he said Governor Lewis had deputed him to offer the Osages, and to execute with them. Having briefly explained to them the purport of the treaty, he addressed them to this effect (in my hearing) and very nearly in the following words: 'You have heard this treaty explained to you; those who now come forward and sign it shall be considered the friends of the United States, and treated accordingly; those who refuse to come forward and sign it shall be considered enemies of the United States, and treated accordingly.' The Osages replied in substance, 'that if their Great American Father wanted a part of their land, he must have it; that he was strong and powerful, they were poor and pitiful. What could they do? He had demanded their land, and had thought proper to offer them something in return for it. They had no choice; they must either sign the treaty, or be declared the enemies of the United States.'

"The treaty was accordingly signed on the same day; and so much were the Osages awed by the threat of Mr. Choateau, that a very unusual number of them touched the pen; many of whom knew no more the purport of the act than if they had been an hundred miles off; and I here assert it to be a fact, that to this day the treaty is not fairly understood by a single Osage.

partners in the Indian trade, and their sons also attained prominence in the various fur companies. In 1804, President Jefferson appointed Pierre as agent to the Indians west of the Mississippi. The treaty referred to may be found in *American State Papers*, "Indian Affairs," i, p. 763; the date was November 10 instead of 8; and the nomination was submitted to the senate January 16, 1810. Fort Clark was an earlier name for Fort Osage, for which see Bradbury's *Travels*, in our volume v, note 31; also our volume xiv, note 136.—ED.

“Thus, the trading-house which had been established gratuitously, in conformity with the earnest [111] solicitations of the Osage chief, and repeated promises of the President, was made a part of the price of the lands acquired under that treaty of the United States. In April 1810 this treaty was ratified and confirmed by the Senate, and was duly proclaimed by the President of the United States to be a law of the land. The Osages complained of the delay which took place between its signature (from which time it was binding on them) and the payment of the first and second annuities, which were not made till September 1811. The trading-house was kept up and well supplied until early in June 1813, at which time the establishment was by order broken up, and has been discontinued ever since, contrary to the expectations and entirely against the consent of the Osages, who considered the trading-house as the only benefit they had acquired by the treaty.

“No complaints have been made against the Osages from the signature of the treaty till after the trading-house and garrison were withdrawn from Fort Clark; since that time a party of the Great Osages murdered one of our citizens, and the murderers were promptly demanded (agreeably to the treaty) by Governor Clark, and would have been surrendered, if Mr. Choateau (who was sent after them) had performed his duty. Several other important things are promised the Osages in the treaty. A mill, ploughs, and other implements of husbandry, a blacksmith to mend their guns, ploughs, &c. and block-houses to defend their towns. In short, they were induced to believe, that an establishment was to be perfectly kept up near their towns, which should afford them a ready market at all times for their furs and pelts, en-

courage and assist them in acquiring habits of civilization, and protect them from their surrounding enemies. A mill and one block-house have been built at an enormous expense, and a blacksmith has been fixed; all at the town of the Great Osages. The mill, I believe, is of [112] some use to those few who are near it. The blacksmith (although expensive to government) is not of the smallest service. The block-house is only useful to the traders who sometimes go to that village.

“All of them would be extremely useful, if properly placed and taken care of; but detached as they are from the agency, and unconnected with an establishment such as was originally contemplated at Fort Clark, they are at present of very little use.

“These facts, concerning the Osage treaty, are stated merely to show that we have not dealt justly with the Osages, and to infer from them, that unless immediate steps are taken to recover that confidence and respect which those Indians once had in the United States, the inevitable consequence will be, their decided and active hostility against the settlements of the Missouri, and those back of the lead mines. British emissaries had repeatedly attempted to engage the Osages in their service previous to the evacuation of Fort Clark, but without effect. The leading men have often declared to me their determination ‘never to desert their American Father as long as he was faithful to them.’ At a time when we were under serious apprehensions of an attack on Fort Clark, the warriors of the Little Osages offered their services to me to defend the post. In less than two months after those declarations and offers of service Fort Clark was evacuated, and the Osage establishment abandoned, without any notice or apology for so very extraordinary and unnecessary an act.

Thus were the Osages left (I may truly say) in the arms of the British agents. How far those agents have succeeded in weaning them from their growing attachment to the United States I am unable to say; they have had full scope for their arts, and it would be idle to suppose they have not made some progress.

“Of all the Missouri Indians, the Osages were the least accessible to British influence, from their [113] strong attachment to the French. They had acquired a *French* prejudice against the English, which, since my acquaintance with them, has rather increased than diminished. Such are the Osages, and such our relations and political standing with them.

“To put an end to the difficulties now existing between the United States and those people, and to relieve our frontier from the additional weight and destructive effects of their hostility, I beg leave to propose the following plan:—

“The Osage treaty should be immediately carried into complete effect, and measures promptly adopted to engage the Osages in the service of the United States: with this view, and to effect the latter important object, it will be necessary to make an establishment near the Osage towns, to consist of a trading-house, armourer, or blacksmith, and mill; the trading-house to be constantly supplied with a sufficient quantity of suitable Indian goods, to be furnished to the Osages (and such other Indians as the Osages may associate with them in the service of the United States, and request to be furnished,) on liberal terms, either in barter for their furs and pelts, payment of their annuities, payment for their services, and such occasional presents as the safety of Indian affairs may authorize or require. This store

should constitute an ample fund always in their country, and always accessible to supply all their wants, and promptly to discharge all their just demands against the United States. During the continuance of the war 40,000 dollars per annum would be requisite. In peace from 10 to 15,000 would be sufficient.

“This establishment should be so regulated in its details as to prevent frauds and abuses, restore confidence among the Osages, and produce the most satisfaction to them, and benefit of the United States. In peace the net profits of the trade will more than defray the whole expense. In war those profits will very much diminish the expense. This establishment [114] should be under the direction of a responsible and confidential agent, who should also be charged with the local superintendence of Indian affairs within the proper sphere of his agency.

“A strong stockade fort and garrison should be fixed in the neighbourhood of the Indian establishment, under such police and regulations as should effectually prevent any clashing between the military and Indian departments, and solely to be confined to military purposes. A system of espionage to be adopted and put into operation at this establishment, and extended as far as possible among the surrounding Indian nations.”

The Osages of the Oaks, or Clermont's band, were separated from the other bands, and fixed in their present situation, chiefly, it is said, through the influence of Mr. Choteau, previously to the cession of the territory to the American government. The monopoly of the Missouri trade having been granted to Mr. Manuel Lisa by the Spanish authorities, Mr. Choteau, a rival trader, could no longer traffic with them on the waters, or within a certain

distance of the Missouri. He therefore managed to separate a considerable portion of the nation from the interest of his rival, and induced them to establish a town near the Arkansa, of the trade of which river he enjoyed the monopoly.

At a short distance we crossed a small creek which issues from a spring of water. The prairie is now very fertile, interspersed with pleasing groves of oak, and swelling, on either hand, and in the distance, into remarkable pyramidal and conical hills, of which the summits are rocky. The spice-wood (*laurus benzoin*) and the pecan (*carya olivæformis*) first occurred to-day. Our distance, twelve miles.

[115] CHAPTER XIV [VIII]¹²⁸

Verdigrise River — Mr. Glenn's Trading-house — New Species of Lizard — Neosho or Grand River — Salt Works — Large Spider — Illinois Creek — Ticks — Arrival at Belle Point.

MONDAY, 4th. The face of the country exhibited the same appearance as that of yesterday's journey, until we arrived at a dense forest, which we supposed to margin the Verdigrise river, or Was-su-ja of the Osages. There being no trace to direct us, we were obliged to penetrate the intricate undergrowth as we might, and after a tedious and laborious passage of something more than three miles, we attained, probably by a somewhat circuitous route, the river which we had so long vainly sought. At our crossing-place the stream was probably eighty yards wide, and one foot in depth, running with a brisk stream over a

¹²⁸ Notes on the following topics mentioned in this chapter may be found in Nuttall's *Journal*, volume xiii of our series: Verdigris River (note 193), Hugh Glenn (35), Neosho River (192), Illinois River (189).— ED.

rocky bed, though above and below, as far as we examined, the depth of water is much more considerable. This river is more rapid and pellucid than any tributary we had passed on this side of the mountain streams, and during the season of floods its volume is augmented by the tribute of those ravines over which we passed on the 30th ultimo.

Late in the afternoon, we struck the Osage trace, leading from their village to the trading establishment, at the confluence of the Verdigrise, whither we now direct our course. Our evening encampment was at a small ravine, in which were some plum bushes, bearing fruit, yet unripe, of a fine red colour, and, without the slightest exaggeration, as closely situated on many of the branches as onions when tied [116] on ropes of straw for exportation. Distance, seventeen miles three quarters. Extreme heat, 90 degrees.

Tuesday, 5th. At ten o'clock we arrived at Mr. Glenn's trading-house, near the Verdigrise, about a mile above its confluence with the Arkansa. We were hospitably received by the interpreter, a Frenchman, who informed us that Mr. Glenn was absent on a visit to Belle Point. In reply to our inquiries respecting the best and shortest route to the place of destination, two Americans who were present assured us, that there was a path the whole distance so obvious as not to be mistaken, and that they were so much occupied, as to be unable to spare any one to pilot us. Unfortunately, however, for our informant, a military cap, which was now discovered suspended from a beam, betrayed him to be a soldier, belonging to the garrison of Belle Point, temporarily employed at this place. When asked by what right he entered into any other engagements whilst in the service of the United States, he replied that he had the permission of his officers;

but as he could not show a certificate, he was ordered to join our suit forthwith as a guide, and to assist with the pack-horses. The interpreter informed us, that the distance to the town of the Osages of the Oaks is about fifty-five miles; from thence to the village of the second band of Osages, called the Great Osages, situated near the head waters of Osage river, more than fifty miles; thence to the village of the third band, called Little Osages, situated on the Neosho or Grand river, three miles; he assured us, that Clermont had then four wives and thirty-seven children; a number, doubtless, unprecedented amongst the North American Indians, and which may probably be attributed to this chief by mistake. We also learned, that at the distance of twenty-five miles was a copious salt spring, lately worked with the permission of the Indians; but at present it is abandoned, and the apparatus removed. Mr. Nuttall, in his interesting Journal of Travels in the Arkansa territory, has given [117] an excellent account of this saline. It produced, agreeably to his statement, under the management of the company, one bushel of salt from eighty gallons of water, and one hundred and twenty bushels were manufactured in a week.¹²⁹

A beautiful species of lizard¹³⁰ (agama), is occasionally

¹²⁹ See reprint of Nuttall's *Journal*, in our volume xiii, pp. 243, 244.—ED.

¹³⁰ *Agama collaris*.—Scales of the back, neck, and head beneath, anterior legs, and superior and posterior portions of the posterior legs, small, slightly convex, mutic, rounded, or a little oblong, obsoletely arranged in transverse lines; those of the abdomen and breast larger, slightly hexagonal or quadrate, and distinctly arranged in transverse lines; those of the tail rather smaller than the abdominal ones, arranged in bands, quadrate, mutic towards the tip of the tail, oblong, carinated, and acute; front, middle of the head, vertex, and anterior portion of the inferior jaw, with scales approaching the size of plates; colour, back with five or six dusky, broad bands, alternating with narrow fulvous bands, which have each a series of yellow or cinereous spots; a few spots are also scattered on the dusky bands; sides greenish-yellow; sides of the neck fulvous, more or less

met with in this territory. It runs with great swiftness. The form of its scales, their arrangement and proportions, considerably resemble those of *polychrus marmorata*, with the exception of the caudal ones, the series of which are equal, and the scales near the tip of the tail only are mucronate. A band over the shoulders somewhat resembles that of *stellio querto paleo*.

In addition to our usual fare, served upon the earth, we here enjoyed the luxury of wild honey and Indian corn, or maize bread, spread upon a table; and felt perhaps a little of that elation which the possession of a new coat communicates to the beau, when we found ourselves mounted on stools and benches around it.

The sassafras (*laurus sassafras*) occurred this morning; and soon after our departure from the trading-house, we saw the cane (*miegia macrosperma*), and were soon involved in a dense cane brake. Here we were hardly fanned by a breath of air, and during the prevalence of the extreme heat of the day, which was 96 degrees, the state of the atmosphere was extremely oppressive. A short ride brought us to the Neosho, or Grand river, better known to the hunters by the singular designation of the Six Bulls.

It enters the Arkansa very near to the confluence of the Verdigrise, and at the ripple, which offers us a facility of crossing, is about eighty yards wide, the water clear, above and below moving with a gentle current, and its bed and shores paved with large pebbles. At the entrance of the opposite forest, our guide, to whom the direct and

varied with brilliant vermilion red, a deep black band, and another on the shoulder, both obsolete above, and terminating near the anterior legs; *beneath* pale; *posterior thighs* with a series of pores; *eyes* silvery, pupil round, black; tail long, tapering, cylindrical. Length from nose to cloaca 4 inches, tail 5½ inches. A specimen is deposited in the Philadelphia museum.— JAMES.

very obvious path was supposed to be so familiar, now became bewildered, and [118] after reconnoitring to his heart's content amongst the entangled briers, vines, and nettles, ushered us into a trace which conducted to an old Indian encampment, and terminated there. Further progress was in a great measure intercepted by the cane brake, which not presenting any path, obliged us to break our passage with much labour. The dusk of the evening found us still pursuing a devious course through a world of vegetation impenetrable to the eye, vainly seeking a spot upon which an encampment could be fixed, when, to our unspeakable joy, and without previous intimation, the prairie of Bayou Menard¹³¹ appeared suddenly before us. The timber of these bottoms is large and various. The extreme heat of the day, 96 degrees. Distance, eighteen miles.


Our pleasure at first seeing civilized white men was of no ordinary kind; it appeared as though we had already arrived at our own homes and families, in anticipation of Belle Point, which had hitherto seemed the utmost boundary and terminus of our pilgrimage.

Wednesday, 6th. A fine morning, and, as on the days of the first instant, and 30th ultimo, no dew had fallen. Crossed the ravine at the head of Bayou Menard, and ascended the elevated hills, clothed with small oaks, and arrived at a branch of Greenleaf Bayou about nine o'clock; a distance of eight miles.¹³²

¹³¹ Bayou Menard (Manard) is a small stream which flows into the Arkansas three or four miles below the Neosho. A short distance above its mouth it unites with Four Mile Creek. The town of Manard is now situated on its east bank.—ED.

¹³² The name Greenleaf Bayou is still borne by this stream, but on many maps it is marked Gruitch (or Grautch) Creek. The town of Bluffs, on the Iron Mountain Railroad, stands near its mouth, which is about twenty miles below the Neosho.—ED.

A slight shower of rain fell in the afternoon; and during our ride we first observed the dogwood (*cornus florida*). In the evening, we arrived at Mr. Bean's salt works. These are situated on a small creek which flows into the Illinois creek about a mile below, and are at the distance of about seven miles from the Arkansa. Mr. Bean commenced his operations in the spring, and has already a neat farm-house on the Illinois, with a considerable stock of cattle, hogs, and poultry, and several acres in Indian corn. Near the springs he has erected a neat log-house, and a shed [119] for the furnace; but his kettles, which were purchased of the proprietors of the Neosho establishment, were not yet fixed. He assured us that the water was so far saturated as not to dissolve any perceptible quantity of a handful of salt that was thrown into it. On the side of a large well, which he had sunk to collect the salt water, and perhaps two feet from the surface of the soil, he pointed out the remains of a stratum of charcoal of inconsiderable extent, through which they had penetrated, and which to a by-stander was a certain proof that these springs had been formerly worked by the Indians. But as no other appearances justified this conclusion, a greater probability seems attached to the idea, that during some former conflagration of the prairies, the charred trunk or branches of a tree was here imbedded. Another agent, however, of sufficient efficacy to operate this carbonization of wood, resides in the sulphuric acid, liberated by the decomposing pyritous rocks, so abundant here.

Whilst waiting with a moderate share of patience for our evening meal of boiled pumpkins, one of the children brought us a huge hairy spider, which he carried upon a twig, that he had induced the animal to grasp with its feet. Its magnitude  and formidable appearance sur-

prised us. The boy informed us that he had captured it near the entrance of its burrow, and that the species is by no means rare in this part of the country. Not having any box suitable to contain it, nor any pin sufficiently large to impale it, we substituted a wooden peg, by which it was attached to the inside of a hat. This species so closely resembles, both in form, colour, and magnitude, the gigantic bird-catching spider of South America,¹³³ that from a minute survey of this specimen, which is a female, we cannot discover the slightest characteristic distinction. But as an examination of the male, [120] comparatively with that of the avicularia, may exhibit distinctive traits, we refrain from deciding positively upon the species. This animal had been previously mentioned by Mr. Nuttall, in his recent and interesting account of his travels in this region.¹³⁴ Distance, twenty-four miles.

Thursday, 7th. The Illinois is called by the Osages *Eng-wah-condah*, or *Medicine Stone Creek*. At our fording place near the Saline, it is about sixty yards wide, with clear water and pebbly shores, like those of the Neosho. We proceeded on, through a country wooded with small oaks, and interspersed with occasional small prairies, and crossed a deep ravine called Bayou Viande.¹³⁵ The Bayous, as they are named in this country, unlike those of the lower portion of the Mississippi river, are large and often very profound ravines or watercourses, which, during the spring season, or after heavy rains, receive the water from the surface of the prairies, and convey it to the river; but in the summer and early

¹³³ *Mygale avicularia*.— JAMES.

¹³⁴ See our reprint, p. 180.— ED.

¹³⁵ The name of Bayou Viande (meaning Meat Bayou) has been corrupted to Vine Creek.— ED.

autumn, the sources being exhausted, the water subsides in their channels, occupying only the deeper parts of their bed, in the form of stagnant pools, exhaling miasmata to the atmosphere, and rendering their vicinity prejudicial to health.

The extreme temperature of the day was 93 degrees, but it was rather abruptly reduced by a strong wind from the S. E., which brought up a heavy rain, with much thunder and lightning, and continued to drench us until the evening, when, after a ride of fourteen miles, we encamped at Bayou Salaison or Meat-salting Bayou.¹³⁶ At our mid-day refectory, we were much annoyed by great numbers of small ticks, that were excessively abundant amongst the grass, and crawled by dozens up our leggings. Wherever they effected a lodgement upon the skin, their numerous punctures would cause an intolerable itching sensation, that bid defiance to repose. In the evening, in addition to the needful process of drying our [121] clothing and blankets, we had ample employment in scratching and picking the pestiferous arachnides from our bodies. On entering the water, the disagreeable sensation seemed to be mitigated for a time, only to be augmented on our return to the atmosphere. Mosquitoes, which were also abundant, were readily expelled from our tents by the smoke of burning wood; but the ticks, otherwise constituted, frustrated our endeavours to obtain the necessary rest and sleep during the night.

These ticks are of two different species, and, in common with other species inhabiting different parts of the United States, are distinguished by the name of *seed*

¹³⁶ This is the correct orthography; the meaning is, more accurately, Salted Meat Bayou. See Nuttall's *Journal*, note 187.—ED.

ticks, probably on account of their small size when compared with others of the same genus.

The larger of the two kinds¹³⁷ may be compared, in point of transverse diameter, to the head of a small-sized pin; but the other one is so much smaller, as to elude the sight, except on minute inspection.

The Cherokee Indians frequently visit this vicinity on hunting excursions; and our guide informs us, that a hunting-party of that nation is at present situate at the mouth of this Bayou, at the distance of two miles and a half from our camp.

Friday, 8th. The face of the country presents the same appearance with that we passed over yesterday, offering in the arrangement of forest and fertile prairie, many advantageous sites for plantations, of which one is already established at the confluence of Big Skin Bayou.

During the afternoon's ride, the country was observed to be more hilly. Soon after the occurrence of the greatest heat of the day, which was 91 degrees, several showers of rain fell, accompanied with distant thunder.

On a naked part of the soil, gullied out by the action of torrents of water, we beheld a hymenopterous or wasp-like insect (sphex) triumphantly, but laboriously, dragging the body of the gigantic spider, [122] its prey, to furnish food to its future progeny. We cannot but admire the prowess of this comparatively pigmy victor, and the

¹³⁷ *Ixodes molestus*.— Body reddish brown, punctured, orbicular very slightly approaching ovate; *scutulus* rounded or sub-angular, hardly attaining the middle of the body, and with two distinct, indented, longitudinal lines; *tergum*, with about four dilated, black, distinct radii behind the middle; margin from near the middle of the side, with ten or twelve impressed, acute, equal, equidistant lines, which do not crenate the edge or upper surface. Length rather more than $\frac{1}{20}$ of an inch.— JAMES.

wonderful influence of a maternal emotion, which thus impels it to a hazardous encounter, for the sake of a posterity which it can never know. Distance, nineteen miles.

Saturday, 9th. Pursued our journey, with every hope of reaching the place of rendezvous appointed by Major Long before noon. Since passing Bayou Viande, we have observed the country on either side of our path to be distinguished by extremely numerous natural elevations of earth, of some considerable degree of regularity. They are of a more or less oval outline, and their general dimensions may be stated at one hundred feet long, by from two to five feet in greatest height. Their existence is doubtless due to the action of water. Should the rivers Platte and Arkansa be deprived of their waters, the sand islands of their beds would probably present a somewhat similar appearance.

An Indian, who observed us passing, hallooed to us from a distance, and expecting some important communication, we waited some time until he came up. He proved to be a Cherokee, dressed much in the manner of the whites, and not a little infected with the spirit of an interrogator, common, no doubt, to those with whom he has been accustomed to associate, and therefore probably regarded by him as a concomitant of civilization. We left him to his own surmises respecting our object and destination, and soon arrived at the path which strikes off for the river. After passing a distance of two miles through a cane brake, we passed a hut and small farm belonging to a soldier of the garrison, and were shortly on the strand of the river, with the long-sought Belle Point before us. We were soon ferried over, and were kindly received on the wharf by Captain Ballard and Mr. Glenn.

The former gentleman was at present invested with the command, in consequence of [123] the temporary absence of Major Bradford, on a visit to St. Louis. His politeness and attention soon rendered our situation comfortable, after a houseless exposure in the wilderness of ninety-three days. The greatest heat of the day was 91 degrees, and distance travelled nine miles.

The Arkansa, below the great bend, becomes more serpentine than it is above, and very much obstructed by sand-bars and islands, either naked or clothed with a recent vegetation; they are but little elevated above the water, and are covered to some depth during the prevalence of floods in the river. At Belle Point, and some distance above, these islands almost wholly disappear, but the sandy shores still continue, and are, as above, alternately situated on either side of the river, as the stream approaches or recedes from the opposite river bottoms. The colour of the water was now olive green. All the red colouring matter, with which it is sometimes imbued, is contributed by streams entering on the southern side. The current of the Arkansa is much less rapid than that of the Platte, but the character of these two rivers, in a great degree, corresponds in their widely spreading waters of but little depth, running over a bed of yielding sand. The rise of the waters at Belle Point takes place in the months of March and early in April, with a less considerable freshet in July and August. But to this place navigation is seldom practicable, for keel-boats, from the month of August to February inclusive, though the autumnal freshet of October and November frequently admits their passage.

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